



Florida Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Rick Scott
Governor

Jennifer Carroll
Lt. Governor

Herschel T. Vinyard Jr.
Secretary

February 18, 2013

Ms. Sine Murray
Planning Manager
Office of Park Planning, Division of Recreation and Parks
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 525
Tallahassee, FL 32399-3000

RE: Werner-Boyce Salt Springs State Park – Lease # 4291

Dear Ms. Murray:

Sine,

The Division of State Lands, Office of Environmental Services, acting as agent for the Board of Trustees of the Internal Improvement Trust Fund, hereby approves the Werner-Boyce Salt Springs State Park land management plan. The next management plan update is due February 18, 2023.

Approval of this land management plan does not waive the authority or jurisdiction of any governmental entity that may have an interest in this project. Implementation of any upland activities proposed by this management plan may require a permit or other authorization from federal and state agencies having regulatory jurisdiction over those particular activities. Pursuant to the conditions of your lease, please forward copies of all permits to this office upon issuance.

Sincerely,

A handwritten signature in black ink that reads 'M. S. Gengenbach'.

Marianne S. Gengenbach
Office of Environmental Services
Division of State Lands

Werner-Boyce Salt Springs State Park

APPROVED Unit Management Plan

**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL
PROTECTION**

**Division of Recreation and Parks
February 15, 2013**



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INTRODUCTION

Werner-Boyce Salt Springs State Park is located on the west coast of Pasco County (see Vicinity Map), just north of the City of Port Richey. Access to the park is from U.S. Highway 19 (see Reference Map). In addition, significant land and water resources existing near the park have been identified on the Vicinity Map.

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) acquired the initial area on Werner-Boyce Salt Springs State Park on December 31, 1992. Since the initial purchase, additional lands have been added to the park through a donation from Pasco County, and acquisitions under Preservation 2000 Additions and Inholdings and the Florida Forever Additions and Inholdings programs.

On July 3, 2000, the Trustees conveyed management authority to the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) under lease number 4291. This lease is a 50-year lease that became effective on July 1, 2000, and will expire on June 30, 2050. In addition, on July 3, 2000, DRP leased 1,685-acres from Pasco County to manage this property, which was purchased with Florida Communities Trust Funds, as part of Werner-Boyce Salt Springs State Park. Currently the park contains 3,999 acres.

The Trustees and Pasco County hold fee simple title to different portions of Werner-Boyce Salt Springs State Park. According the lease from the Trustees, and the management lease agreement with Pasco County, DRP manages the park primarily for the development, conservation and protection of natural and cultural resources, and for compatible resource-based public outdoor recreation. Werner-Boyce Salt Springs State Park is designated single-use to provide resource-based public outdoor recreation and other park related uses. There are no legislative or executive directives that constrain the use of this property.

PURPOSE AND SIGNIFICANCE OF THE PARK

The purpose of Werner-Boyce Salt Springs State Park is to provide Florida's residents and visitors with high-quality resource-based outdoor recreation and to preserve coastal habitat and undisturbed natural communities in a rapidly developing metropolitan area.

Park Significance

- Werner-Boyce Salt Springs State Park provides picturesque coastal habitat types for a wide variety of outdoor resource-based recreational activities in one of the fastest growing areas of the state.
- The park occurs in a transitional zone on Florida's west coast that features rare natural communities, including salt marsh, marine seagrass bed and hydric hammock, and fosters high biological diversity and productivity.

- The park protects two artesian salt springs of outstanding quality, Cauldron Spring and Salt Spring, whose depth exceeds 320 feet.
- The park protects approximately four miles of undisturbed low-energy coastline on the Gulf of Mexico, which includes Bayonet Point, protecting critical remaining habitat for local wildlife, including some of the southern-most breeding habitat for the rare endemic species of Scott's seaside sparrow (*Ammodramus maritimus peninsulae*) and the uncommon secretive black rail (*Laterallus jamaicensis*), as well as habitat for a rare endemic species of wren, Marian's marsh wren (*Cistothorus palustris marianae*).
- The park protects the site of an historic mid-nineteenth century salt-works and additional cultural resources representing more than 3,000 years of human activity.

Werner-Boyce Salt Springs is classified as a state park in DRP's unit classification system. In the management of a state park, a balance is sought between the goals of maintaining and enhancing natural conditions and providing various recreational opportunities. Natural resource management activities are aimed at management of natural systems. Development in the park is directed toward providing public access to and within the park, and to providing recreational facilities, in a reasonable balance, that are both convenient and safe. Program emphasis is on interpretation of the park's natural, aesthetic and educational attributes.

PURPOSE AND SCOPE OF THE PLAN

This plan serves as the basic statement of policy and direction for the management of Werner-Boyce Salt Springs State Park as a unit of Florida's state park system. It identifies the goals, objectives, actions and criteria or standards that guide each aspect of park administration, and sets forth the specific measures that will be implemented to meet management objectives and provide balanced public utilization. The plan is intended to meet the requirements of Sections 253.034 and 259.032, Florida Statutes, Chapter 18-2, Florida Administrative Code, and is intended to be consistent with the State Lands Management Plan. With approval, this management plan will replace the 2001 approved plan.

The plan consists of three interrelated components: the Resource Management Component, the Land Use Component and the Implementation Component. The Resource Management Component provides a detailed inventory and assessment of the natural and cultural resources of the park. Resource management needs and issues are identified, and measurable management objectives are established for each of the park's management goals and resource types. This component provides guidance on the application of such measures as prescribed burning, exotic species removal, imperiled species management, cultural resource management and restoration of natural conditions.

Legend

Public Lands

- Park Boundary
- Federal Managed Areas
- State Managed Areas
- Local Managed Areas
- Private Managed Areas
- Aquatic Preserves

Private Lands

- Developed
- Undeveloped

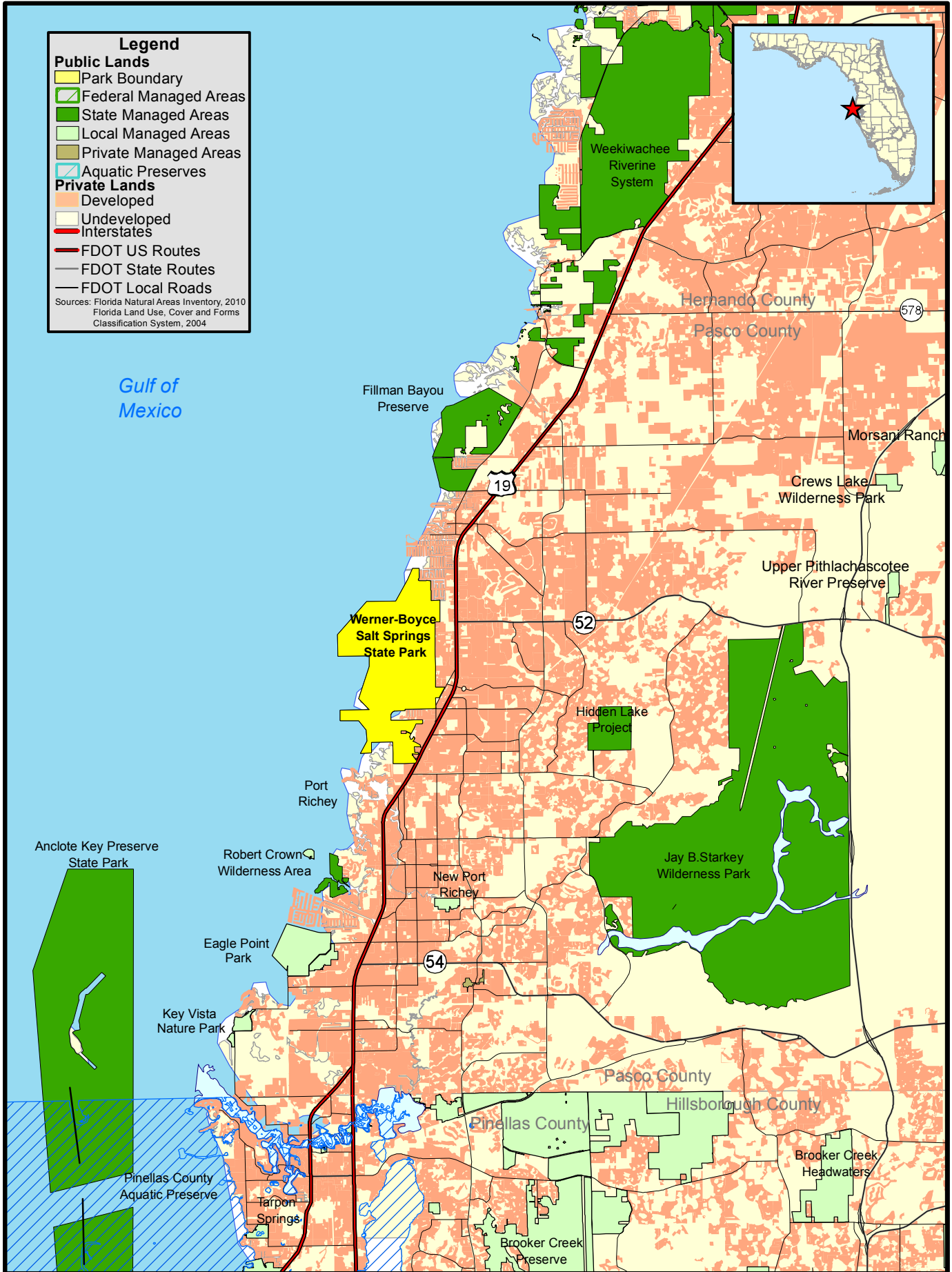
Interstates

FDOT US Routes

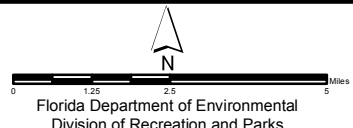
FDOT State Routes

FDOT Local Roads

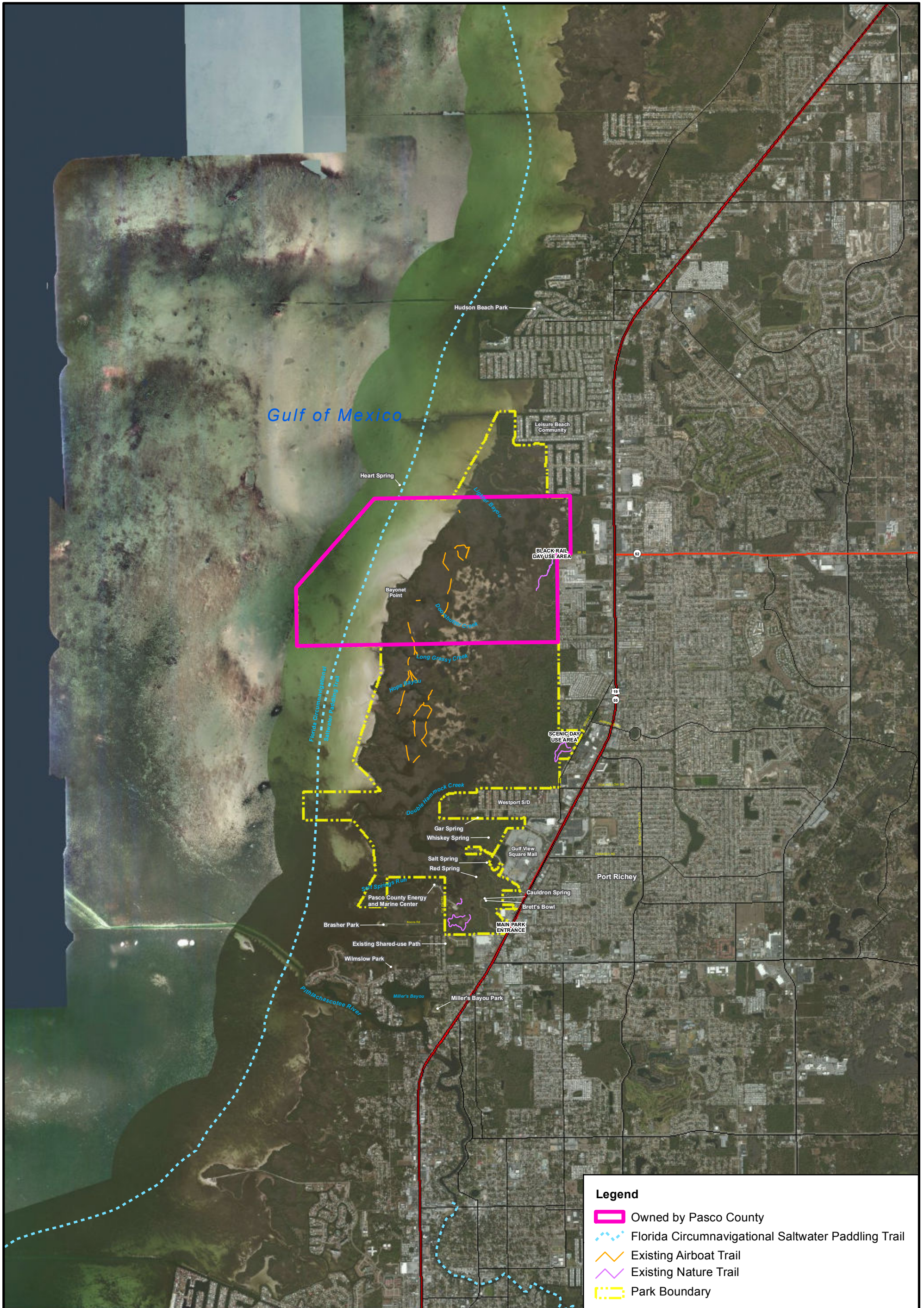
Sources: Florida Natural Areas Inventory, 2010
Florida Land Use, Cover and Forms Classification System, 2004



WERNER-BOYCE SALT SPRINGS STATE PARK



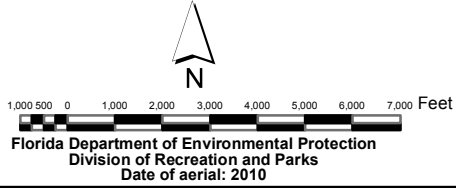
VICINITY MAP



Legend

- Owned by Pasco County
- Florida Circumnavigational Saltwater Paddling Trail
- Existing Airboat Trail
- Existing Nature Trail
- Park Boundary

WERNER-BOYCE SALT SPRINGS STATE PARK



REFERENCE MAP

The Land Use Component is the recreational resource allocation plan for the park. Based on considerations such as access, population, adjacent land uses, the natural and cultural resources of the park, current public uses and existing development, measurable objectives are set to achieve the desired allocation of the physical space of the park. These objectives locate use areas and propose the types of facilities and programs and the volume of public use to be provided.

The Implementation Component consolidates the measurable objectives and actions for each of the park's management goals. An implementation schedule and cost estimates are included for each objective and action. Included in this table are (1) measures that will be used to evaluate DRP's implementation progress, (2) timeframes for completing actions and objectives and (3) estimated costs to complete each action and objective.

All development and resource alteration proposed in this plan is subject to the granting of appropriate permits, easements, licenses and other required legal instruments. Approval of the management plan does not constitute an exemption from complying with the appropriate local, state or federal agencies.

In the development of this plan, the potential of the park to accommodate secondary management purposes was analyzed. These secondary purposes were considered within the context of DRP's statutory responsibilities and the resource needs and values of the park. This analysis considered the park's natural and cultural resources, management needs, aesthetic values, visitation and visitor experiences. For this park, it was determined that no secondary purposes could be accommodated in a manner that would not interfere with the primary purpose of resource-based outdoor recreation and conservation. Uses such as water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry (other than those forest management activities specifically identified in this plan) are not consistent with this plan.

The potential for generating revenue to enhance management was also analyzed. Visitor fees and charges will be the principal source of revenue generated by the park. It was determined that multiple-use management activities would not be appropriate as a means of generating revenues for land management. Instead, techniques such as entrance fees, concessions and similar measures will be employed on a case-by-case basis as a means of supplementing park management funding.

The use of private land managers to facilitate restoration and management of this park was also analyzed. Decisions regarding this type of management (such as outsourcing, contracting with the private sector, use of volunteers, etc.) will be made on a case-by-case basis as necessity dictates.

MANAGEMENT PROGRAM OVERVIEW

Management Authority and Responsibility

In accordance with Chapter 258, Florida Statutes and Chapter 62D-2, Florida Administrative Code, the Division of Recreation and Parks (DRP) is charged with the responsibility of developing and operating Florida's recreation and parks system. These are administered in accordance with the following policy:

It shall be the policy of the Division of Recreation and Parks to promote the state park system for the use, enjoyment, and benefit of the people of Florida and visitors; to acquire typical portions of the original domain of the state which will be accessible to all of the people, and of such character as to emblemize the state's natural values; conserve these natural values for all time; administer the development, use and maintenance of these lands and render such public service in so doing, in such a manner as to enable the people of Florida and visitors to enjoy these values without depleting them; to contribute materially to the development of a strong mental, moral, and physical fiber in the people; to provide for perpetual preservation of historic sites and memorials of statewide significance and interpretation of their history to the people; to contribute to the tourist appeal of Florida.

The Board of Trustees of the Internal Improvement Trust Fund (Trustees) has granted management authority of certain sovereign submerged lands to DRP under Management Agreement MA 68-086 (as amended January 19, 1988). The management area includes a 400-foot zone from the edge of mean high water where a park boundary borders sovereign submerged lands fronting beaches, bays, estuarine areas, rivers or streams. Where emergent wetland vegetation exists, the zone extends waterward 400 feet beyond the vegetation. The agreement is intended to provide additional protection to resources of the park and nearshore areas and to provide authority to manage activities that could adversely affect public recreational uses.

Many operating procedures are standardized system-wide and are set by internal direction. These procedures are outlined in DRP's Operations Manual (OM) that covers such areas as personnel management, uniforms and personal appearance, training, signs, communications, fiscal procedures, interpretation, concessions, public use regulations, resource management, law enforcement, protection, safety and maintenance.

Park Management Goals

The following park goals express DRP's long-term intent in managing the state park.

1. Provide administrative support for all park functions.
2. Protect water quality and quantity in the park, restore hydrology to the extent feasible and maintain the restored condition.
3. Restore and maintain the natural communities/habitats of the park.
4. Maintain, improve or restore imperiled species populations and habitats in the park.
5. Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.
6. Protect, preserve and maintain the cultural resources of the park.
7. Provide public access and recreational opportunities in the park.
8. Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.

Management Coordination

The park is managed in accordance with all applicable laws and administrative rules. Agencies having a major or direct role in the management of the park are discussed in this plan.

The Florida Department of Agriculture and Consumer Services (FDACS), Florida Forest Service (FFS), assists DRP staff in the development of wildfire emergency plans and provides the authorization required for prescribed burning. The Florida Fish and Wildlife Conservation Commission (FFWCC), assists staff in the enforcement of state laws pertaining to wildlife, freshwater fish and other aquatic life existing within the park. In addition, FFWCC aids DRP with wildlife management programs, including imperiled species management and Watchable Wildlife programs. The Florida Department of State (FDOS), Division of Historical Resources (DHR) assists staff to ensure protection of archaeological and historical sites.

Public Participation

DRP provided an opportunity for public input by conducting a public workshop and an Advisory Group Meeting to present the draft management plan to the public. These meetings were held on Wednesday, September 19 and Thursday, September 20, 2012, respectively. Meeting notices were published in the Florida Administrative Weekly, September 7, 2012, Volume 38, Issue 36, included on the Department Internet Calendar, posted in clear view at the park, and promoted locally. The purpose of the Advisory Group meeting is to provide the Advisory Group members an opportunity to discuss the draft management plan (see Addendum 2).

Other Designations

Werner-Boyce Salt Spring State Park is not within an Area of Critical State Concern as defined in Section 380.05, Florida Statutes, and it is not presently under study for such designation.

All waters within the park have been designated as Outstanding Florida Waters, pursuant to Chapter 62-302, Florida Administrative Code. Surface waters in this park are also classified as Class III waters by DEP. This park is not within or adjacent to an aquatic preserve as designated under the Florida Aquatic Preserve Act of 1975 (Section 258.35, Florida Statutes).

RESOURCE MANAGEMENT COMPONENT

INTRODUCTION

The Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP) in accordance with Chapter 258, Florida Statutes, has implemented resource management programs for preserving for all time the representative examples of natural and cultural resources of statewide significance under its administration. This component of the unit plan describes the natural and cultural resources of the park and identifies the methods that will be used to manage them. Management measures expressed in this plan are consistent with DEP's overall mission in ecosystem management. Cited references are contained in Addendum 3.

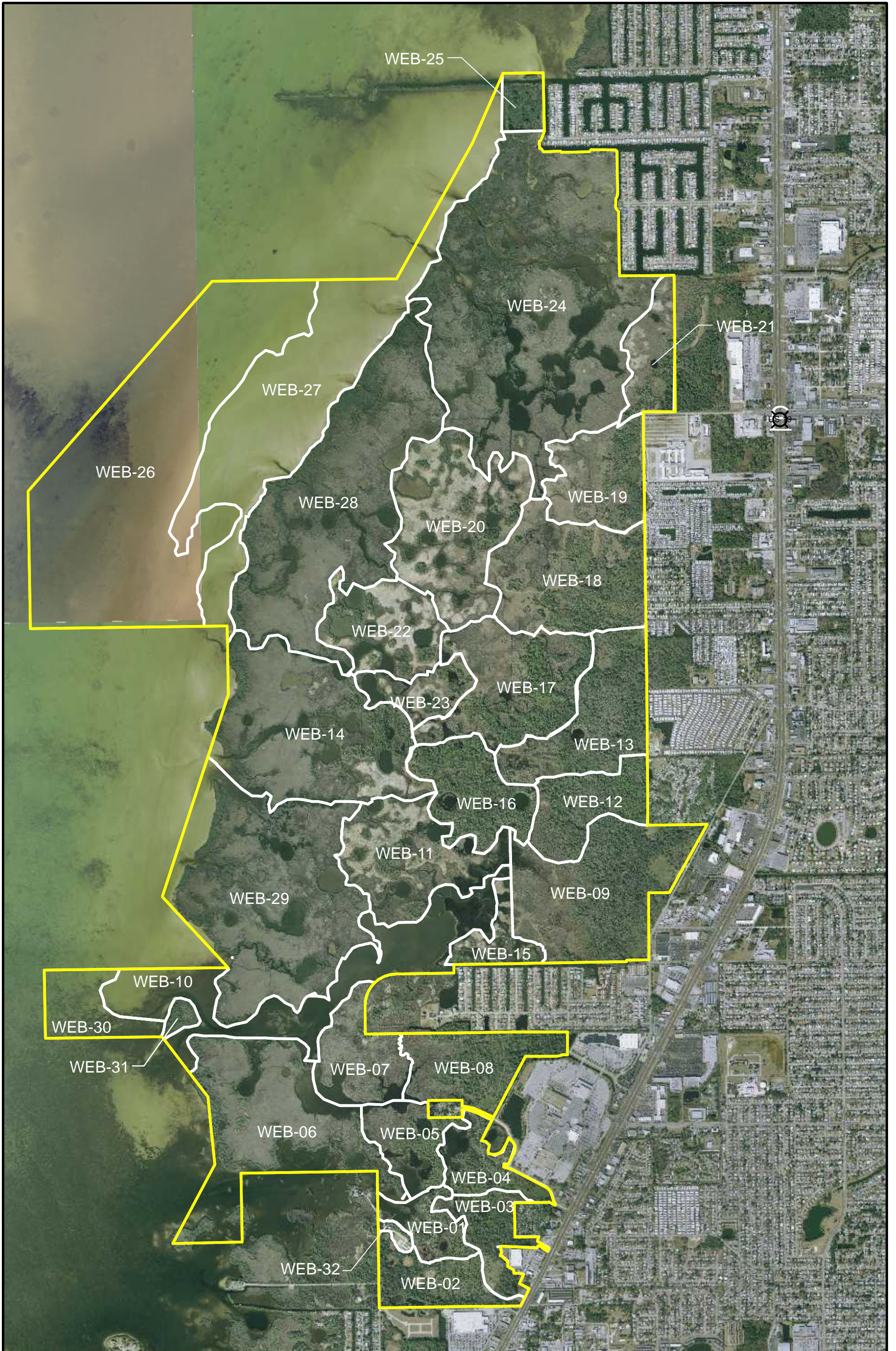
DRP's philosophy of resource management is natural systems management. Primary emphasis is placed on restoring and maintaining, to the degree possible, the natural processes that shaped the structure, function and species composition of Florida's diverse natural communities as they occurred in the original domain. Single species management for imperiled species is appropriate in state parks when the maintenance, recovery or restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes and should not imperil other native species or seriously compromise park values.

DRP's management goal for cultural resources is to preserve sites and objects that represent Florida's cultural periods, significant historic events or persons. This goal often entails active measures to stabilize, reconstruct or restore resources or to rehabilitate them for appropriate public use.

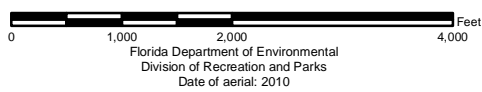
Because park units are often components of larger ecosystems, their proper management can be affected by conditions and events that occur beyond park boundaries. Ecosystem management is implemented through a resource management evaluation program that assesses resource conditions, evaluates management activities and refines management actions and reviews local comprehensive plans and development permit applications for park/ecosystem impacts.

The entire park is divided into management zones that delineate areas on the ground that are used to reference management activities (see Management Zones Map). The shape and size of each zone may be based on natural community type, burn zone, and the location of existing roads and natural firebreaks. It is important to note that all burn zones are management zones; however, not all management zones include fire-dependent natural communities. Table 1 reflects the management zones with the acres of each zone.

Table 1: Werner-Boyce Salt Springs State Park Management Zones		
Management Zone	Acreage	Managed with Prescribed Fire
WEB-01	34.04	Yes
WEB-02	52.63	Yes
WEB-03	44.02	Yes
WEB-04	42.48	Yes
WEB-05	49.19	Yes
WEB-06	195.40	Yes
WEB-07	64.81	No
WEB-08	77.32	Yes
WEB-09	161.92	Yes
WEB-10	159.68	No
WEB-11	113.36	Yes
WEB-12	65.49	Yes
WEB-13	105.32	Yes
WEB-14	216.80	Yes
WEB-15	29.52	Yes
WEB-16	77.52	Yes
WEB-17	125.66	Yes
WEB-18	139.95	Yes
WEB-19	76.89	Yes
WEB-20	158.08	Yes
WEB-21	47.31	Yes
WEB-22	81.56	Yes
WEB-23	38.03	Yes
WEB-24	474.71	No
WEB-25	20.76	No
WEB-26	431.37	No
WEB-27	268.20	No
WEB-28	300.86	No
WEB-29	290.30	No
WEB-30	45.72	No
WEB-31	7.65	No
WEB-32	4.81	No



WERNER-BOYCE SALT
SPRINGS STATE PARK



MANAGEMENT ZONES MAP

RESOURCE DESCRIPTION AND ASSESSMENT

Natural Resources

Topography

The slope of the land within the park is very gradual. The majority of the park is below the 5-foot contour line. Only a few portions in the southwestern part of the park are higher. The deepest offshore depth within the park boundary is about six feet.

Alterations to the topography throughout the park have been made from the excavation of mosquito ditches and several drainage canals. The northernmost land areas of the park have been altered by dredge and fill activities. This site is approximately 20 acres, where fill material from canal dredging for the adjacent development to the east was deposited as berms and for the creation of a mangrove swamp. In addition, the recently installed entrance road is elevated above surface grade to a maximum height of twelve feet, but unimproved roads are at or near grade.

Geology

Werner-Boyce Salt Springs State Park is within the Gulf Coastal Lowlands Physiographic region. This region is characterized as a low relief, poorly drained area between the Brooksville Ridge and the Gulf of Mexico. In addition, characteristic of this region is the presence of marine terraces of varying geographic age that represent ancient shoreline features.

The park is situated on the Pamlico Terrace; a former sea bottom now partly emerged from the Gulf of Mexico. This geologic feature extends into the Gulf, where its western edge is about six feet below sea level. To the east, it slopes upward to about 25 feet above sea level where it encounters an escarpment marking the edge of the Talbot Terrace, another former sea bottom that is geologically older (Noss and Bland 1990). These surface features, shaped by the dynamics of ancient shorelines, constitute a thin mantle of sand overlying a limestone base, which has been abundantly pocked and channeled by the dissolving action of water to create circular pools and meandering flows throughout the park. This resulting karst topography is quite visible in the springs, sinks and creek banks within the park.

This part of Florida is a low energy coast, having a mean annual wave height of 30 cm and a spring tide range of 90 cm. The reduced wave energy is largely an effect of the offshore continental shelf that is very wide in this region, with a low gradient that prevents waves coming onto the shore from building to a large size.

Soils

The Natural Resources Conservation Service identified 76 soil types in Pasco County, of which 13 are found in the park (see Soils Map). Addendum 4 contains detailed soil descriptions for the latter.

Although the majority of the park falls within the Coastal Swamps physiographic province, the landward (eastern) part is near the border of the Gulf Coastal Lowlands province (White 1970). The soils of the park are characteristic of both of these provinces (USDA SCS 1982). The general soil units for the Coastal Swamps in the park are those of the Homosassa-Lacoochee-Weekiwachee and the Aripeka-Okeelanta-Terra Ceia complexes. The former includes soils associated with salt marsh habitats and the latter is more indicative of freshwater swamps. However, the relatively better-drained Aripeka soils have flatwoods on them as well as some islands of maritime hammock. The soils of the salt marsh are subject to daily flooding by normal tides. Soils representative of the Gulf Coastal Lowlands are located principally along the landward boundary of the park, specifically near Scenic Drive. The general soil unit in the park is Tavares-Adamsville-Narcossee. This is the soil complex for the saw palmetto dominated flatwoods.

Given the flat terrain at this park, there is less chance for erosion via the usual pattern of surface water flowing down an unvegetated slope. However, an inventory and assessment of archaeological sites (Memory and Newman 1997) noted that many of them were sited along creeks where boat wakes might have an erosive impact. In addition, creeks and trails that receive flow from urban stormwater runoff are subject to erosion during heavy rain events. The soils in the area of the dredge and fill activities at the north end of the park are classified as Udalfic Arents-Urban land complex which are disturbed soils so intermingled that they cannot be separated at the scale used for soil mapping (USDA SCS 1982).

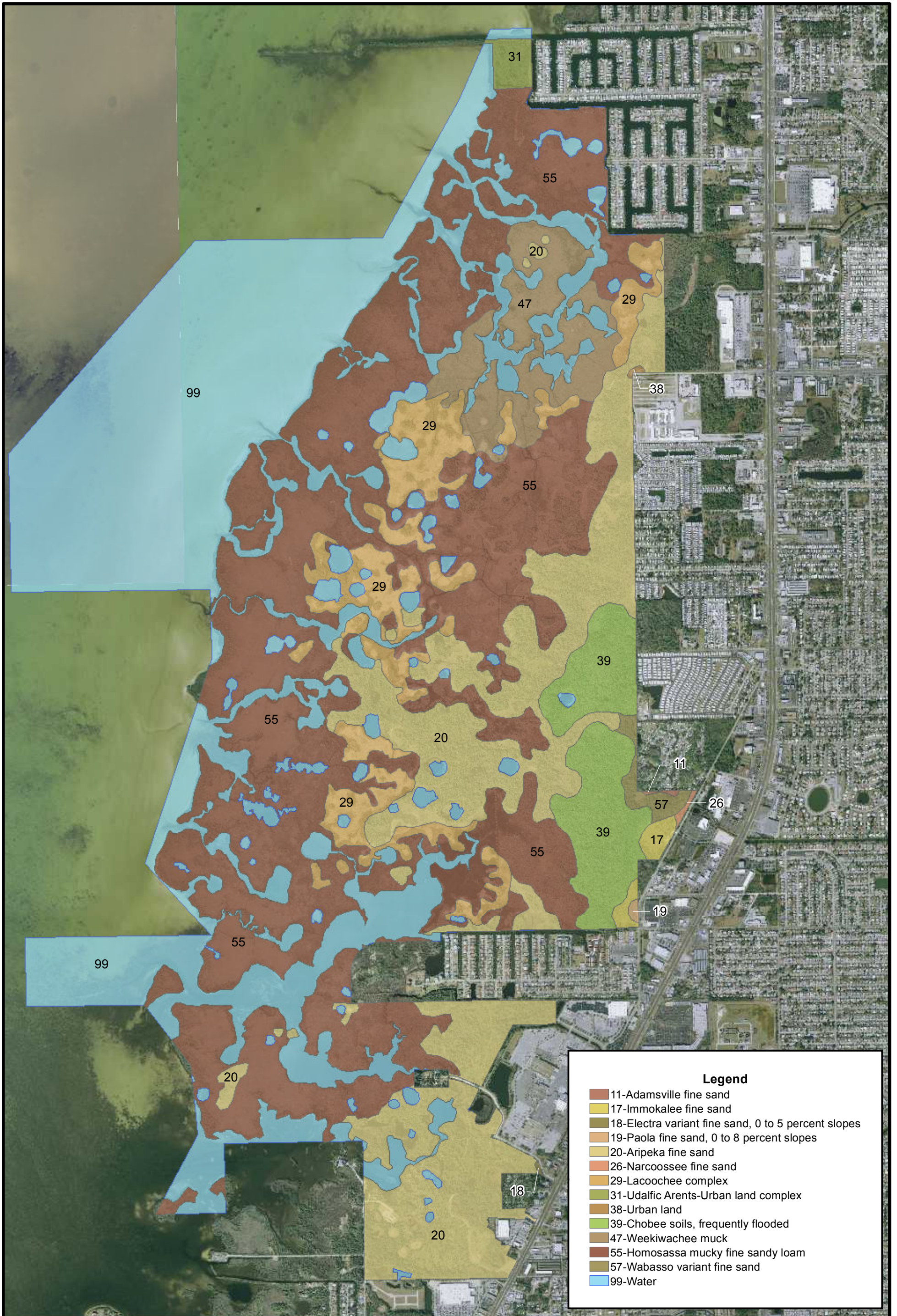
Minerals

No mineral deposits of current commercial value are known to be present.

Hydrology

Groundwater: There are a number of visible groundwater features present in the park. The two most well known features are the flowing springs, Salt Spring and Cauldron Spring. There are also a number of sinks scattered throughout the park that vary in depth and hydrologic character. Another small spring, Whiskey Spring, is a little north of Salt Spring, and several others are just outside the park boundary.

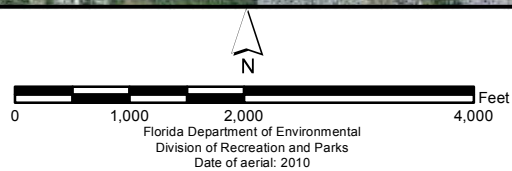
Salt Spring, referenced in the park name, is located at the eastern edge of the park behind what is now the Gulf View Square Mall. The spring is an irregular opening in the vertical rock wall of a tidal creek. The opening to the spring vent is submerged and not visible from the surface. At low tide, a small boil of groundwater is often visible. It flows about 30 meters to the west where it passes under a natural limestone bridge. From there the water flows about 23 meters to another natural bridge and then boils up on the far side from three submerged holes (Wetterhall 1965; Rosenau 1977; Walsh and Williams 2003).



Legend

- 11-Adamsville fine sand
- 17-Immokalee fine sand
- 18-Electra variant fine sand, 0 to 5 percent slopes
- 19-Paola fine sand, 0 to 8 percent slopes
- 20-Aripeka fine sand
- 26-Narcoossee fine sand
- 29-Lacoochee complex
- 31-Udalfic Arents-Urban land complex
- 38-Urban land
- 39-Chobee soils, frequently flooded
- 47-Weekiwachee muck
- 55-Homosassa mucky fine sandy loam
- 57-Wabasso variant fine sand
- 99-Water

WERNER-BOYCE SALT
SPRINGS STATE PARK



SOILS MAP

The flow of groundwater has not been consistently measured in Salt Spring. United States Geologic Survey (USGS) data from 1960, 1964 and 1972 measured the flow at the spring vent as 9.0 ft³/s (estimated), 10.5 ft³/s, and 9.0 ft³/s (estimated) respectively (Rosenau 1977). The Salt Spring Run is tidally influenced, and during periods of high tide, the flow reverses and salt water flows into the spring (Wetterhall 1965). Updated flow data are needed and could be collected during research dives by volunteer groups and the Southwest Florida Water Management District (SWFWMD).

The park has not initiated any formal survey of the subterranean features of Salt Spring. However, recreational divers have been diving and surveying the spring's depth and other dimensions for some years. Reports indicate a 200-foot deep solution tube inside the spring entrance. From there several large caverns have been documented to the west and northwest of the entrance. The deepest point documented to date is about 300 feet. Visibility is reported to be poor, especially close to the cave entrance (CaveAtlas.com 2011). The park should continue to work with research divers to document the subterranean features of the spring.

Cauldron Spring is located about 1730 feet south of Salt Spring, and is adjacent to a north-south unimproved park road. The spring vent is a 5-foot tall, 12-foot wide opening in the northeast side of the spring pool. The vent is located about 12 feet deep and is not visible from the surface (KES 2008). The spring pool is about 20 feet wide and 17 feet long.

No groundwater flow data have been recorded for Cauldron Spring. The flow of water into and through the spring bowl is influenced by both saltwater and freshwater runoff. An 18-inch culvert passes under the adjacent park road that funnels water from the drainage ditch to the east into the spring bowl during periods of heavy rainfall. During high tide salt-water flows into the spring bowl through the spring run, raising surface water levels about two feet on average and covering the end of the culvert.

The subterranean features of Cauldron Spring have been surveyed. Divers mapped a large cave system that starts just inside the cave mouth and directly below the park road. The cave ceiling is about 16 to 29 feet deep. The first large cavern is about 40 feet long and 20 feet wide. From there the cave extends another 40 feet before trending south for another 70 feet and terminating in a major restriction (KES 2008).

Several of the documented sinks in the park have also been investigated. The most extensive one to date is known as Brett's Toilet Bowl. It is located just southeast of Cauldron Spring. Divers explored several passages in the sink to a depth of 54 feet. Investigation of the subterranean features ended at a restriction. It was observed that water flow in the sink appeared to be in the direction of the restriction (KES 2008). No connection to Cauldron Spring cavern was made, but it may exist due to the close proximity.

Whiskey Spring is located in the mesic flatwoods community north of Salt Spring. Little is known about its hydrogeology. Gar Spring is further north still and just beyond the park boundary. There is also a submerged spring, Heart Spring, in the Gulf of Mexico just north and west of the park boundary near Lighter Bayou. This spring has had some exploration by recreational cave divers (CaveAtlas.com 2011). There are also a number of karst features scattered in the park that appear as brackish ponds or “holes” that are likely influenced by some groundwater seepage and surface water inflow. A swallet or karst opening where surface water disappears underground is present just east of Whiskey Spring. A study is needed to determine the subterranean geology and the surface hydrology of the swallet to ensure it is not receiving stormwater from development to the east.

Surface Water: Surface water hydrology in the park is influenced by rainfall, tidal fluctuations, spring flow and stormwater runoff. Despite the nearly level topography in the park, surface rainfall flows quickly through the mesic pine flatwoods and hydric hammocks as sheet flow or underground seepage. This, in turn, flows into the salt marsh creeks and tidal marsh, sustaining the estuarine environment in the coastal marsh. Micro-topographic changes within the park provide sites of intermittent pooling of water following heavy or prolonged rain events. These “low areas” are likely the result of the underlying karst topography of the park.

The spring run streams from Salt Spring and Cauldron Spring are intermittently dominated by groundwater flow and tidal inundation. While the freshwater spring flow contributes to the hydrology and ecology of the spring run streams, the dominating influence of tidal inundation has resulted in these streams being primarily estuarine. The spring run from Whiskey Spring is very short, terminating in several short branches that hold water following periods of flow.

Stormwater runoff from the adjacent heavily urbanized City of Port Richey enters the park by a combination of drainage canals and surface sheet flow from the eastern boundary. During peak periods of heavy rainfall, runoff will flow directly from roadways and parking lots into the park. Several nearby developments and roadways were built prior to the current treatment regulations for stormwater. As a result, excess water was channeled or allowed to run-off downslope in the direction of least resistance, the undeveloped area that now makes up the state park.

The surface hydrology in and around the park has been noticeably affected by mosquito control ditches cut by the Pasco County Mosquito Control District (PCMCD). The PCMCD began a mosquito source reduction program in 1953 that provided for the elimination of potential breeding sites by ditching to facilitate drainage. Three source reduction management projects were completed by the PCMCD within and adjacent to the boundaries of the park. Project 8 - Salt Springs, begun in 1957 but never fully completed, is located adjacent to the southwestern boundary of the park and includes

2.5 miles of ditches associated with Salt Springs Run. Project 9 – Double Hammock Creek, begun in 1957 and completed in 1958, provided additional drainage from the Westport subdivision into Double Hammock Creek. This project ditched 5.4 miles, less than 1 mile of which is within the park boundary. Project 10 – Bayonet Point, begun in 1957 and completed in 1970, ditched 26.9 miles within the park boundary between Westport subdivision and State Road 52. This project impacted 945 acres and accounts for the highly visible network of ditches throughout this area of the park (Wassmer 2003). Restoration should be planned for any ditches that are determined to be no longer needed by PCMCD.

Several other alterations have been made to the hydrology of the park due to dredge and fill operations. On the southern boundary of the park, a natural depression marsh was excavated in the late 1970s or early 1980s, presumably for stormwater control of the planned development to the south, or possibly for fill. A ditch was dug to the west along the north side of the existing adjacent salt water pond.

On the northern boundary of the park, the development of the Leisure Beach Community resulted in the dredging of a main east-west canal for boat access to the Gulf of Mexico, as well as the dredging of a small north-south canal that is now within the park. The main canal from the development receives maintenance dredging. Between the canals, a mangrove swamp was created which is visible today as a rectangle of tidal swamp surrounded by berms and canals.

There is a marked channel through Double Hammock Creek to the Westport subdivision to provide residents boat access to the Gulf of Mexico. The channel is completely within what is now the park boundary. Future dredging of this channel is prohibited by a corrective deed related to a federal court order which states that the property shall never be altered, modified, built upon or changed in any way at any time.

A mounded roadbed that was the result of buried dumpsite debris was located west of the terminus of State Road 52. It was an impediment to sheet flow through the mesic flatwoods to the salt marsh. A resource restoration project funded by DEP removed the mounded spoil on about 150 feet of roadbed in November 2010. This returned the road to grade and should allow for natural sheet flow in this area.

In 2005, a mitigation project west of the Black Rail Trail by Tampa Bay Water hydroblasted 30,000 square feet of spoil along mosquito ditches back to grade away from the ditches. The project did not fill the ditches, but the removal of the spoil berms eliminated invasive exotic plants and should improve surface water and tidal flow.

Water Quality: Water quality in Salt Spring has been monitored sporadically over the years and quarterly in recent years. From 2002 to 2007, the Springs Initiative provided

funding to study water quality trends at the spring, with analysis done at the DEP water quality laboratory in Tallahassee. Parameters analyzed were color, turbidity, ammonia-N, nitrite/nitrate, total Kjeldahl nitrogen and total phosphorus. Funding should be sought to continue monitoring water quality at the spring. Similar monitoring of water quality, as well as spring flow rates, should be initiated for Cauldron Spring.

Stormwater is a major concern because of the potential to degrade surface water within the park as well as the long-term alterations to the natural community structure of the park. Water quality at present is not known to exceed standards, but monitoring stations should be established wherever significant stormwater enters the park, including sheet flow, such as occurs at Scenic Drive Trail. Two large municipal drainage canals enter the park, one north of the Scenic Drive trailhead and one south of the new entrance road. A stormwater assessment of these drainages is badly needed, to be followed by amelioration of negative impacts to the park's Outstanding Florida Waters.

Water samples from monitoring stations of the DEP Springs Coast Basin adjacent to the park have been verified as imperiled due to excessive levels of bacteria (FDEP 2008; FDEP 2009). One monitoring station is located just west of the park at the Energy and Marine Center, and the other is just south at Brasher Park Beach, where high fecal coliform counts have resulted in periodic beach closures. The mouth of the Pithlachascotee River is just south of the park boundary. While the river was removed from the verified impaired waters list in 2009, data collection will continue in order to confirm lack of impairment (FDEP 2009). Park staff should regularly monitor the water quality results for these sites as it pertains to water quality within the park.

Currently there is a plan for the installation of two groundwater monitoring wells just south of the main entrance road. These wells are being installed by an outside contractor to monitor for possible groundwater contamination from a petroleum spill at a local business to the east of the park boundary. Water monitoring data collected from the wells will be provided to the park as a condition of the agreement between the Trustees and the contractor. The park can request that the wells remain following the designated monitoring period.

An interagency working group of representatives from local and state agencies was formed several years ago to address the hydrologic issues at the park. Needed projects outlined included coordination for stormwater master planning, establishing quarterly water quality sampling in Salt Springs, and monitoring of stormwater flow and quality coming into the park. There is a need to re-establish such a working group to maintain partnerships with local municipalities and water quality regulatory agencies. The City of Port Richey has a stormwater management program that may be able to assist the park by providing for improved stormwater management facilities upstream of the park.

Natural Communities

This section of the management plan describes and assesses each of the natural communities found in the state park. It also describes the desired future condition of each natural community and identifies the actions that will be required to bring the community to its desired future condition (DFC). Specific management objectives and actions for natural community management, exotic species management, and imperiled species management are discussed in the Resource Management Program section of this component.

The system of classifying natural communities employed in this plan was developed by the Florida Natural Areas Inventory (FNAI). The premise of this system is that physical factors such as climate, geology, soil, hydrology and fire frequency generally determine the species composition of an area, and that areas that are similar with respect to those factors will tend to have natural communities with similar species compositions. Obvious differences in species composition can occur, however, despite similar physical conditions. In other instances, physical factors are substantially different, yet the species compositions are quite similar. For example, coastal strand and scrub--two communities with similar species compositions--generally have quite different climatic environments, and these necessitate different management programs. Some physical influences, such as fire frequency, may vary from FNAI's descriptions for certain natural communities in this plan.

When a natural community within a park reaches the desired future condition, it is considered to be in "maintenance condition." Required actions for sustaining a community's maintenance condition may include: maintaining optimal fire return intervals for fire dependant communities, ongoing control of non-native plant and animal species, maintaining natural hydrological functions (including historic water flows and water quality), preserving a community's biodiversity, protecting viable populations of plant and animal species (including those that are imperiled or endemic), and preserving intact ecotones linking natural communities across the landscape.

The park contains 17 distinct natural communities and four altered landcover types, as well as developed areas (see Natural Communities Map). A list of known plants and animals occurring in the park is contained in Addendum 5.

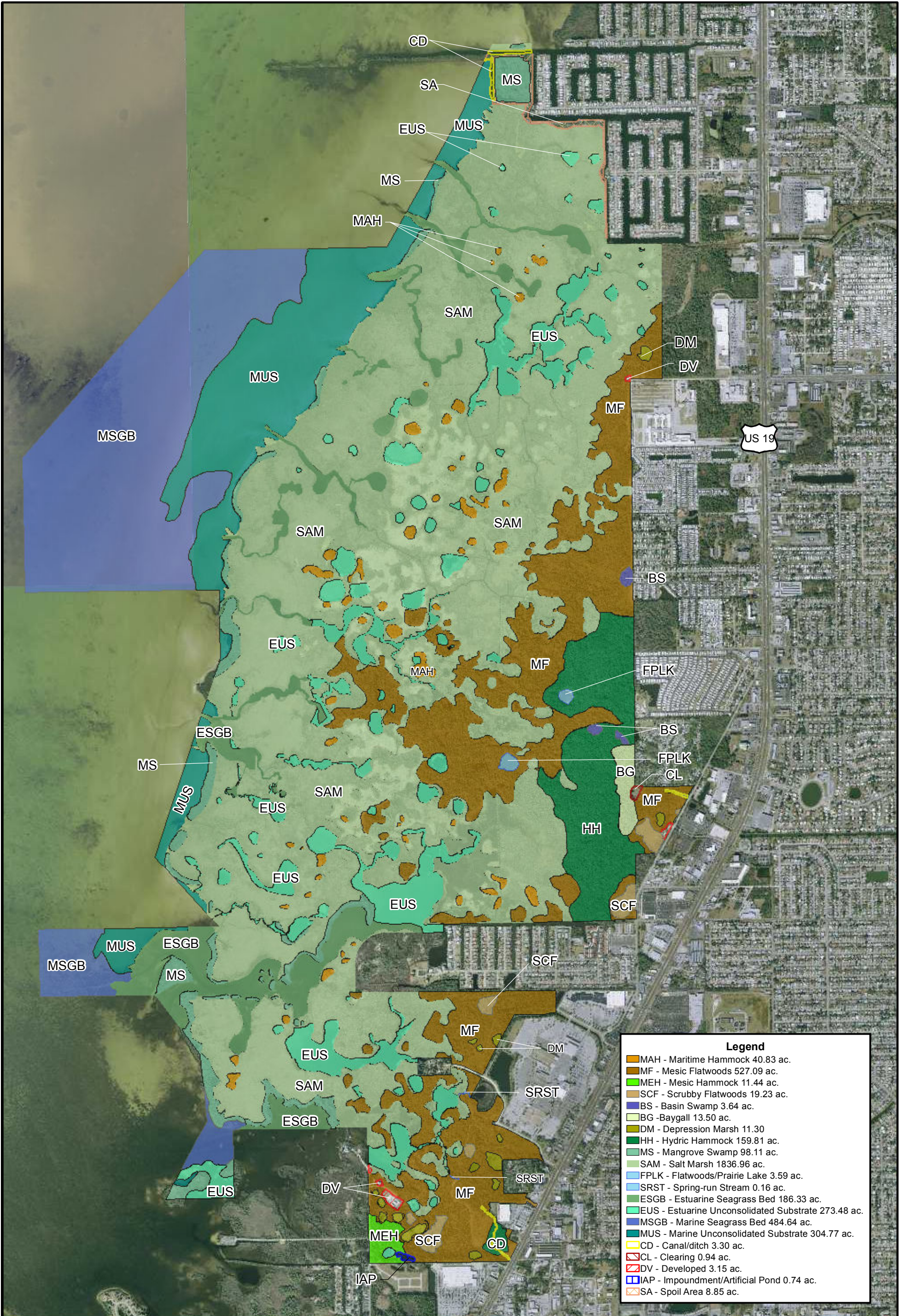
MARITIME HAMMOCK

Desired Future Condition: The maritime hammock community should continue to maintain a canopy of live oak (*Quercus virginiana*), red cedar (*Juniperus virginiana*), and cabbage palm (*Sabal palmetto*). Understory species should be shrubs and small trees tolerant of salt spray and sporadic tidal inundation, like yaupon (*Ilex vomitoria*), wax myrtle (*Myrica cerifera*), necklace pod (*Sophora tomentosa* var. *truncata*) or saffron plum

(*Sideroxylon celastrinum*). Herbaceous groundcover should be rare or absent. Invasive exotic plant species if present should be rare.

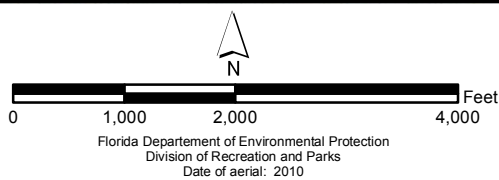
Description and assessment: An ecological report on this region by the U.S. Fish and Wildlife Service provides an exposition of coastal forests (Simons 1990), which is used as a guide in this plan to distinguish and describe maritime hammock and hydric hammock. Simons writes, "On the coast, the cabbage palm-live oak-southern red cedar forest breaks up into peninsulas and islands interspersed with the salt marsh to form one of Florida's most scenic landscapes." He notes that these islands support "...forest (maritime hammock) dominated by sand live oak (*Quercus geminata*) and live oak in association with cabbage palm, southern red cedar (*Juniperus silicicola*) [which is now considered conspecific with *J. virginiana*] and other trees." He distinguishes maritime hammock from hydric hammock by the fact that the latter forms the vast majority of coastal live oak, cabbage palm and red cedar forest in this region and that this forest is subject to flooding. It is assumed that Simons meant freshwater flooding and not tidal flooding, which may occasionally affect the islands and peninsulas classified here as maritime hammock. In this plan, the designation of maritime hammock is reserved for those drier, discontinuous, outlying fragments, i.e. islands and peninsulas in the salt marsh, which are dominated by cabbage palm, live oak and red cedar. The island maritime hammocks range in size from a few square feet to several acres. The dominant overstory here is composed of cabbage palms with increases in red cedar, South Florida slash pine (*Pinus elliottii* var. *densa*) and live oak as higher elevations are reached. Typical understory species include Florida privet (*Forestiera segregata*), necklace pod, yaupon, buttonwood (*Conocarpus erectus*), saffron plum and marsh elder (*Iva frutescens*). Occasional clumps of butterfly orchids (*Encyclia tampensis*) occur epiphytically on live oaks on some islands along with several other epiphytes, mostly *Tillandsia* spp. The islands frequently are bordered by mangroves, cordgrasses (*Spartina* spp.), sawgrass (*Cladium jamaicensis*), needle rush (*Juncus roemerianus*), water pimpernel (*Samolus ebracteata*), goldenrods (*Solidago* spp.), keygrass (*Monanthochloe littoralis*), glasswort (*Salicornia virginica*) and saltwort (*Batis maritima*). Typical animals include Florida box turtle (*Terrepenne carolina barui*), eastern diamondback rattlesnake (*Crotalus adamanteus*), Great egret (*Ardea alba*), and Chuck-wills-widow (*Caprimulgus carolinensis*).

General management measures: Potential impacts to the maritime hammock community include invasion by exotic plants, primarily Brazilian pepper (*Schinus terebinthifolius*), impacts from visitors and impacts from storms. Any future changes in sea level or subsidence will also alter the plant community. Routine exotic plant control and monitoring for visitor impacts are the primary management actions for these natural communities. Occasionally, prescribed fires creep into these hammock areas, especially where they are continuous with mesic flatwoods or salt marsh. Signs of illegal primitive camping or digging for artifacts should prompt corrective actions as necessary.



Legend	
MAH	Maritime Hammock 40.83 ac.
MF	Mesic Flatwoods 527.09 ac.
MEH	Mesic Hammock 11.44 ac.
SCF	Scrubby Flatwoods 19.23 ac.
BS	Basin Swamp 3.64 ac.
BG	Baygall 13.50 ac.
DM	Depression Marsh 11.30 ac.
HH	Hydric Hammock 159.81 ac.
MS	Mangrove Swamp 98.11 ac.
SAM	Salt Marsh 1836.96 ac.
FPLK	Flatwoods/Prairie Lake 3.59 ac.
SRST	Spring-run Stream 0.16 ac.
ESGB	Estuarine Seagrass Bed 186.33 ac.
EUS	Estuarine Unconsolidated Substrate 273.48 ac.
MSGB	Marine Seagrass Bed 484.64 ac.
MUS	Marine Unconsolidated Substrate 304.77 ac.
CD	Canal/ditch 3.30 ac.
CL	Clearing 0.94 ac.
DV	Developed 3.15 ac.
IAP	Impoundment/Artificial Pond 0.74 ac.
SA	Spoil Area 8.85 ac.

WERNER-BOYCE SALT
SPRINGS STATE PARK



NATURAL COMMUNITIES MAP

MESIC FLATWOODS

Desired Future Condition: South Florida slash pine and occasional longleaf pine (*Pinus palustris*) should continue to dominate the canopy of the mesic flatwoods community. Herbaceous groundcover should be at least 50 percent. Saw palmetto (*Serenoa repens*) and other shrubs such as gallberry (*Ilex glabra*), staggerbush (*Lyonia fruticosa*), and shiny blueberry (*Vaccinium myrsinites*) should constitute less than 50 percent cover and should be less than 3 feet in height. There should not be any saw palmetto stems long enough to be lying along the ground. Invasive exotic plant species if present should be rare. Wherever feasible manmade drainage canals and mosquito ditches should be filled or plugged.

Description and assessment: This community type constitutes most of the upland acreage in the park. It is the primary buffer between the adjacent eastern urbanization and the salt marsh to the west. As is typical, slash pine and saw palmetto prevail. Longleaf pine is present in at least one location. Unlike nearby flatwoods further inland, cabbage palm is more abundant here. The prevalence of this species is likely a function of its calciphilous tendencies and the fact that the underlying limestone is close enough to the surface to influence the vegetation. Although the cabbage palm cannot tolerate lengthy tidal inundation, it tolerates saline soils sufficiently to give the appearance of infiltrating the mesic flatwoods from the Gulf side. Live oak and, in wetter spots, laurel oak (*Quercus laurifolia*), compose the remaining overstory species.

As might be expected, portions of this community that have had more fires are floristically richer sites. Dominant understory species besides saw palmetto are wax myrtle, saltbushes (*Baccharis* spp.), gallberry, greenbrier (*Smilax auriculata*), broomsedge (*Andropogon virginicus*), flattop goldenrod (*Euthamia caroliniana*), dewberry (*Rubus trivialis*), several species of panic grass (*Panicum* spp.) and threeawn grasses (*Aristida* spp.). Typical animals include gopher tortoise (*Gopherus polyphemus*), eastern diamondback rattlesnake, bobcat (*Felis rufus*), and numerous birds like black and white warbler (*Mniotilta varia*), great-horned owl (*Bubo virginianus*), Carolina chickadee (*Poecile carolinensis*) and southern hairy woodpecker (*Picoides villosus audubonii*).

It should be noted that parts of the mesic flatwoods in this park are generally wetter than the mesic flatwoods described by FNAI, but not wet enough to be labeled wet flatwoods. Several wetland species are present. Examples include, but are not limited to, semaphore plant (*Eupatorium mikanioides*), scattered sawgrass and Florida bully (*Sideroxylon reclinatum*). The last is typical of habitats where limestone is near the surface as is the case here.

The mesic flatwoods north of the Westport subdivision have been impacted by mosquito ditches. The ditches disrupt sheet flow and the associated spoil mounds provide substrate for invasive plants that would not normally occur in mesic flatwoods.

The ditches also interfere with access during resource management activities such as prescribed burning. The mesic flatwoods just north of State Road 52 has historically been used as a dumpsite. At present, there are still several spoil piles, concrete rubble and areas of dense invasive plants like cogon grass (*Imperata cylindrica*), guinea grass (*Panicum maximum*) and paper mulberry (*Broussonetia papyrifera*).

General management measures: Potential impacts to the mesic flatwoods community include fire exclusion, invasive plant species establishment, hydrologic alterations and roadway impacts. The fire return interval for mesic flatwoods is 2-4 years. The historic exclusion of fire from this community has resulted in areas of dense saw palmetto that may require mechanical treatment. Portions of the mesic flatwoods in the southern part of the park have been colonized with young laurel and live oaks that should be controlled by fire. Invasive exotic plants should be monitored and treated on a regular schedule. Care should be taken when installing roads and fire breaks to minimize alterations to sheet flow and potential for erosion.

Ditches that are no longer deemed necessary by the PCMCD, and can be restored without negative impacts to adjacent property, should be filled or blocked, invasive plants treated, and native vegetation replanted as appropriate.

MESIC HAMMOCK

Desired Future Condition: Mesic hammocks will generally contain sandy soils with organic materials and may have a thick layer of leaf litter at the surface. There should continue to be a well-developed canopy of live oak and cabbage palm. Southern red cedar, sugarberry (*Celtis laevigata*) and laurel oak should continue to be present in the canopy and sub-canopy. A shrubby understory composed of saw palmetto, beautyberry (*Callicarpa americana*), wax myrtle, wild coffee (*Psychotria nervosa*) and myrsine (*Rapanea punctata*) should be present. The groundcover may be sparse and patchy but should be dominated by panic grasses, switchgrasses and sedges as well as various ferns and forbs. Abundant vines and epiphytes, such as smilax, resurrection fern and Tampa butterfly orchid, should be present on live oaks, cabbage palms and other subcanopy trees. The mesic hammock should not typically burn during a prescribed fire, but fire may carry into the edges. Invasive exotic plant species if present should be rare.

Description and assessment: This community is rare in the park and currently only known to occur at the southwest corner of the property along Old Post Road. Originally, this area was classified as mesic flatwoods, but floristic inventory and resistance to fire have led to a clear delineation as mesic hammock. Simons (1990) described the mesic hammocks of the Springs Coast to be highly productive, have the highest species diversity and as quite variable geographically. The mesic hammock lacks the great species diversity alluded to by Simons, likely due to its location at the southern extent of the Springs Coast eco-region. The canopy is dominated by live oak, cabbage palm and southern red cedar. Slash pine, the dominant canopy species of the

adjacent flatwoods, is absent. While this species composition also dominates in the maritime hammock community, the more upland situation of the hammock and lack of evidence of salt-water inundation are evidence against a maritime designation. Also scattered in the canopy are sugarberry and mulberry (*Morus rubra*). The shrub layer is dominated by wax myrtle, myrsine, saw palmetto and beautyberry. Typical animals include common yellowthroat (*Geothlypis trichas*), northern cardinal (*Cardinalis cardinalis*) and northern parula (*Parula americana*).

General management measures: Potential impacts to the mesic hammock community include invasion by exotic plants, salt-water inundation and damage during hurricanes, and visitor impacts. Currently Brazilian pepper, Chinese tallow (*Sapium sebiferum*) and camphor tree (*Cinnamomum camphorata*) are the most problematic exotic plant species. Rosary pea (*Abrus precatorius*) is also present and should be controlled. The mesic conditions in the hammock will allow for rapid colonization of these species and diligence to keep them in maintenance condition will be required. There is currently a hiking trail through the hammock and proper signage should be installed to prevent visitor impacts off the trail.

SCRUBBY FLATWOODS

Desired Future Condition: The canopy should be very sparse, less than one tree per acre of South Florida slash or longleaf pine. The scrub oak component of sand live oak and myrtle oak (*Quercus myrtifolia*) will vary in height from 3-8 feet and there will be a variety of oak age classes and heights across the landscape. There should be saw palmetto and a diversity of xeric shrubs such as staggerbush, scrub olive (*Osmanthus megacarpus*), rusty lyonia (*Lyonia ferruginea*), bigflower pawpaw (*Asimina obovata*) and Carolina holly (*Ilex ambigua*). Herbaceous groundcover should be minimal, interspersed with patches of bare sand. The optimal fire return interval for this community should be 4-6 years. Care should be taken to allow for a mosaic of varying age classes of oaks to maintain mast production. Invasive exotic plant species if present should be rare.

Description and assessment: This community is uncommon in the park. The only known locations are on the east side of the park adjacent to Scenic Drive and small patches interspersed within the mesic flatwoods at the south end of the park. Tarflower and flatwoods pawpaw are both present. The dominant soil types support flatwoods, scrub and sandhill. Overall, the species composition in the scrubby flatwoods is a unique mix of scrubby flatwoods and scrub plants. The canopy is dominated by sand live oak and the understory by myrtle oak, scrub olive, bigflower pawpaw, saw palmetto, rusty lyonia, flatwoods pawpaw and Carolina holly. The groundcover is sparse due to the density of midstory shrubby species, but goldenrod (*Solidago* sp.), sandyfield beaksedge (*Rhynchospora megalocarpa*) and shiny blueberry are present. The presence of scrub species such as the scrub wild olive, garberia (*Garberia heterophylla*), bigflower pawpaw and several sand pines (*Pinus clausa*), since killed by fire, may be the result of the park's proximity to the pre-development sandhill and scrub communities

east of the park, as well as proximity to the Brooksville Ridge. Representative examples of these locally extinct upland communities occur on conservation lands further north along the State Road 19 corridor near Weeki Wachee Springs State Park. The ecotonal position of this community between the historical upland sandhill and scrub communities and the forested lowlands explains the species overlap. Animals include gopher tortoise, eastern phoebe (*Sayornis phoebe*) and gray fox (*Urocyon cinereoargenteus*).

It is notable that the canopy of the scrubby flatwoods along Scenic Drive does not presently have a pine component, even though pines are present in the adjacent mesic flatwoods. This suggests that after re-establishment of the fire regime the community could eventually be identified as oak dominated scrub. Careful monitoring will be needed to gauge shifts in species composition.

The scrubby flatwoods in the southern part of the park is less floristically diverse. Sand live oak and myrtle oak are the dominant shrubs. South Florida slash pines are few. Also present are staggerbush, saw palmetto, gallberry and shiny blueberry. Few herbaceous species are present but bottlebrush threeawn (*Aristida spiciformis*), bracken fern (*Pteridium* sp.), wiregrass (*Aristida stricta*) and bluestem grasses are sporadic. The soils here are identical to the surrounding mesic flatwoods, but micro-topographic differences likely account for the difference in natural community. Past fire exclusion or low intensity, fires may be responsible for the absence of sandy gaps typical of scrubby flatwoods.

General management measures: Long-term fire exclusion has resulted in a very dense shrub layer of oaks and saw palmetto and a canopy of overgrown sand live oak in some of this community. Prescribed fire of sufficient intensity at intervals of 4-6 years may be sufficient to return this habitat to its natural state. However, mechanical treatment in the form of selective thinning with chainsaws or roller chopping will likely be needed to reduce tree height and open sandy gaps. The transition to hydric hammock can be abrupt on the western edge of this community near Scenic Drive Trail. Care will need to be taken to preserve this unique ecotone during mechanical treatment activities and fire preparation. Generally, the scrubby flatwoods in the southern part of the park is in good condition. Additional potential management concerns are invasion by cogon grass, especially after mechanical treatment or fire and runoff of urban stormwater.

BAYGALL

Desired Future Condition: Baygall is a wet, densely forested, peat filled depression typically near the base of a slope. Seepage from the adjacent uplands will maintain saturated conditions. The canopy should be dominated by sweetbay magnolia (*Magnolia virginiana*), swamp bay (*Persea palustris*), Carolina willow (*Salix carolinana*) and swamp tupelo (*Nyssa sylvatica* var. *biflora*). A sparse understory consisting of Virginia willow (*Itea virginica*), fetterbush (*Lyonia lucida*), dahoon holly (*Ilex cassine*) and red maple (*Acer rubrum*) with climbing vines such as green briar and muscadine should

be present. The optimal fire return interval for this community is 25-100 years. Prescribed fire in the adjacent mesic flatwoods may creep into the edges of the baygall and should be allowed to progress and extinguish naturally, where safe burning conditions allow. Invasive exotic plant species if present should be rare.

Description and assessment: The only well-defined baygall community in the park is found along Scenic Drive, along the east boundary. Historically it appears to have formed the headwaters of Double Hammock Creek, but is now influenced by a canal that intersects perpendicularly with Scenic Drive. This community type is not common locally, and most examples are small, scattered patches ranging in size from a few to about 100 acres (Simons 1990). This one seems to stay wet year round as is typical of seepage swamp systems. The soil is so soft and saturated with water (i.e. mucky) as to make walking extremely difficult. Although the typical loblolly bay (*Gordonia lasianthus*) is absent, sweet bay, swamp bay and some very large Carolina willows form the primary canopy. Laurel greenbrier (*Smilax laurifolia*) and Virginia willow, both indicators of wet conditions, are present. Swamp tupelo is present on the western edge of this community, which changes gradually into hydric hammock. The adjoining hydric hammock dries out and stays dry most months of the year.

General management measures: Wild taro (*Colocasia esculenta*) was present in the baygall community but has been mostly eliminated. The above-mentioned canal is still infested with taro, so park staff will need to monitor the baygall community for this invasive plant. The stormwater ditch drains nearby urban development and empties directly into the baygall community. During periods of heavy rainfall, the erosion potential from runoff is high. Stormwater discharge from this canal needs to be assessed for potential impacts and corrective actions.

HYDRIC HAMMOCK

Desired Future Condition: The hydric hammock is a closed canopy, evergreen hardwood forest, sometimes with a large contingent of palms. The understory is variable and dominated by palms, with sparse to moderate ground cover of grasses and ferns. Typical canopy species include live oak, cabbage palm, sweet bay, swamp tupelo, American elm (*Ulmus americana*), red maple and other hydrophytic tree species. Soils are poorly drained, with a normal hydroperiod seldom over 60 days per year. Hydric hammock should occasionally burn from fires originating in adjacent upland natural communities. Invasive exotic plant species if present should be rare.

Description and assessment: Within the park, the large continuous coastal forests that are dominated by live oak in association with cabbage palm, southern red cedar and laurel oak are classified as hydric hammock. It can form an open forest interspersed with patches of sawgrass and other marsh plants. Further inland, under the influence of more fresh water, these forests become more closed canopied and wetter, and support red maple and sweet bay. Harper (1915) noted that “the low (hydric) hammocks of the

Gulf Hammock region correspond approximately with soils of mixed marl, clay, sand, and humus, whereas the adjacent flatwoods are on acid soils, often with an organic hardpan. The boundaries between hammock and flatwoods here are quite irregular, and generally have no fire barriers other than the differences in vegetation." Thus, these hammock forests generally lack slash pine in their overstory, which is dominated by cabbage palms, oaks, and other mixed hardwoods. Loblolly pine (*Pinus taeda*), which is a common component of hydric hammocks further north along this coast, is absent here. Though adjacent to the flatwoods, these hydric hammocks are slightly lower in elevation, hence moister and not fire-prone. The majority of the hydric hammock community type is located in the east central portion of the park. A small area of hydric hammock is also present on the north side of the main park drive near the entrance. The understory is semitropical in appearance, with myrsine, wild coffee and string lily (*Crinum americanum*) common among large fern-covered oak trunks. As indicated above, the overstory varies from open to dense. In the latter case, sweet bay, red maple and the Florida form of American elm close the canopy and allow little light to penetrate to the forest floor. Swamp tupelo is occasionally present. Poison ivy (*Toxicodendron radicans*), leather fern (*Acrostichum danaeifolium*), swamp fern (*Blechnum serrulatum*), widespread maiden fern (*Thelypteris kunthii*) and greenbriers (*Smilax* spp.) are common understory plants. Less common are marlberry (*Ardisia escallonioides*), swamp dogwood (*Cornus foemina*), dahoon holly, bald cypress (*Taxodium distichum*) and swamp bay. The rather uncommon upland swamp-privet (*Forestiera ligustrina*) is present in at least one location. Pasco County is its southern range limit.

General management measures: Active management of the hydric hammock community consists primarily of monitoring for visitor impacts and invasive exotic plants. Problem exotics are Brazilian pepper and air-potato (*Dioscorea bulbifera*). Other potential impacts may occur from hydrologic alterations. Hydric hammock is not considered a pyric community and may serve as a natural firebreak where conditions are suitable.

BASIN SWAMP

Desired Future Condition: The forested basin wetlands at the park should be dominated by red maple with occasional Carolina willow. The average hydroperiod should be 200-300 days. Other canopy species may include South Florida slash pine, red maple dahoon holly, sweetbay and sweetgum (*Liquidambar styraciflua*). Shrub species could include swamp dogwood, wax myrtle and Virginia willow. The herbaceous component should be dominated by emergent aquatic species such as sawgrass, maidencane (*Panicum hemitomon*), arrowheads (*Sagittaria* spp.), lizard's tail (*Saururus cernuus*) and false nettle (*Boehmeria cylindrica*). Soils will be typically acidic, nutrient poor peats often overlying a clay lens or other impervious layer.

Description and assessment: There are currently three basin swamps documented in the park. One on the eastern boundary in the more northern part of the park and the

others are further south, within the hydric hammock community. The northern basin swamp is visible on historical aerials as a depression marsh. However, two mosquito ditches now cut through it, resulting in drastic hydrological and soil alterations that have made it no longer recognizable as a marsh. Carolina willow and Brazilian pepper appear to dominate the more hydric portions of the swamp while South Florida slash pine, occasional red cedar and laurel oak are present on the berms left by the ditching. Sawgrass and sand cordgrass (*Spartina bakeri*) are present in the understory.

The basin swamps within the hydric hammock were likely dominated by herbaceous vegetation at one time as indicated by the young even-aged appearance of the red maple trees that dominate both. It is possible that hydrologic alterations from development to the east, as well as exclusion of fire, have resulted in succession to swamp. The understory of both swamps is dominated by sawgrass. While these are likely successional in nature, they are fully functional natural communities. Their proximity to the eastern boundary of the park may result in them receiving increased runoff and a higher nutrient load.

General management measures: The northern basin swamp is in need of restoration to a functional wetland community. A determination is needed whether the two mosquito ditches can be filled. That would be a critical step in the restoration process. Then, all invading pines, invasive plants and hardwoods would require removal along with the spoil that resulted from ditching. Replanting of native herbaceous wetland vegetation would also be required.

The other basin swamps require monitoring for invasive plants and for vegetative changes due to hydrologic alterations east of the park.

DEPRESSION MARSH

Desired Future Condition: The depression marshes should continue to be dominated by emergent herbaceous vegetation. Trees and shrubs should be absent to rare and occur primarily in the deeper portions of the community if present. There should be little accumulation of dead grassy fuels due to frequent burning; the soil surface should typically be visible through the vegetation when the community is not inundated. Dominant vegetation should include sand cordgrass, black needle rush and sawgrass. Invasive exotic plant species if present should be rare.

Description and assessment: This community type is scattered throughout the park. These marshes are generally circular shallow depressions, primarily within the mesic flatwoods communities. Depression marshes have not been previously described for the park. Those now designated were either not mapped separately from the mesic flatwoods or were classified as marsh lakes. The latter no longer have open water zones and appear to have succeeded to marsh. The vegetative composition varies considerably from marsh to marsh. Those previously classified as marsh lake are

characterized by sand cordgrass, waterhyssop (*Bacopa monnieri*), bulltongue arrowhead (*Sagittaria lancifolia*), flat sedges (*Cyperus* spp.), beaksedges (*Rhynchospora* spp.) and fimbry (*Fimbristylis* spp.) on the edges and a mix of dense stands of sawgrass, cattails or black needle rush in the deeper inner portions. Cattails are not typical for depression marshes, and their origins here are not well understood.

Most of the depression marshes previously mapped as mesic flatwoods are dominated by sand cordgrass, sawgrass, black needle rush or a combination thereof with narrow outer concentric zones of flat sedges, beaksedges leather fern and fimbry. Several have become invaded by Carolina willow, with a few young red maples, in the absence of regular prescribed burning. The marshes invaded with woody species are near the park's east boundary and may be experiencing some hydrologic alterations from urban stormwater runoff.

General management measures: The depression marsh should be burned along with the adjacent mesic flatwoods community every 1-3 years. When possible, the marshes invaded by woody species should be burned at a time when the fire intensity is sufficient to carry fire through the marsh to kill the woody shrubs. If fire alone is not sufficient to knock back woody species, some community improvement may be required in the form of mechanical or chemical thinning. The marshes at the park are particularly susceptible to invasion by exotic plants, primarily Brazilian pepper. A program of exotic plant control should be established, especially for the marsh perimeters.

FLATWOODS LAKE

Desired Future Condition: The flatwoods lakes at the park are zones of open water within the flatwoods and hammock natural communities. A narrow band of emergent vegetation may be present around the outer edges. The dominant vegetation along the edges should continue to be species typical of the mesic flatwoods such as saw palmetto, staggerbush, gallberry and wax myrtle or of the hammock communities such as live or laurel oak, Carolina willow, dahoon holly, red maple, or swamp bay, depending on their location. Invasive exotic plant species if present should be rare.

Description and assessment: The flatwoods lakes have previously been considered marsh lakes. Those that are surrounded by mesic flatwoods and hammock with little to no marsh vegetation around the perimeter have been designated as flatwoods lakes in keeping with FNAI natural community designations. By definition, a marsh lake is present as a body of open water that is within a marsh, and is small in comparison to the extent of surrounding marsh vegetation. When no marsh is present, designation as flatwoods lake is warranted. These appear to hold water year round, but little is understood of their hydrogeology or depth. The predominance of karst influence in this part of the state makes the presence of sinkhole lakes possible. Further investigation of the flatwoods lakes should be done to determine if any are sinkhole lakes.

General management measures: Flatwoods lakes are not pyric communities, but when they are present in the mesic flatwoods community, the perimeter vegetation should burn as often as the surrounding flatwoods, every 1-3 years. The edges of the lakes are prone to invasive exotic vegetation and should be monitored, and invasive species treated when they are found.

SPRING-RUN STREAM

Desired Future Condition: The spring runs at the park are not typical of the higher magnitude spring runs of the Springs Coast ecoregion, so the more typical climax community condition does not readily apply. The flow is derived from both groundwater flow and daily tidal fluctuations. Any influence on the spring runs from urban stormwater should be removed by diversion or elimination of stormwater conduits. Typical vegetation along the high banks should be live oak, palmetto, red cedar, wax myrtle and salt bush (*Baccharis halimifolia*). Red (*Rhizophora mangle*), black (*Avicennia germinans*) and white (*Laguncularia racemosa*) mangroves should continue to persist on shallow outcrops and bends in the streams. Invasive exotic plant species should not be present.

Description and assessment: There are three spring run streams documented in the park. Each vary quite markedly from the more typical spring run streams by lacking clear water, sandy bottoms and the typical submerged vegetation of higher magnitude spring runs. The first, and most well known historically, is fed by Salt Spring. The spring run flows southwest and joins Salt Springs Run Creek. The water is tannic and brackish and the rate of flow is low, so does not appear to influence the creek flow or habitat beyond the western edge of the mesic flatwoods. At this point, the spring run gives way to the salt marsh and the overwhelming influence of daily tides.

There is some exposed limestone just downstream of Salt Spring that gives the false appearance of water “welling up” through additional holes in the rocky substrate. The creek is tidally influenced and at high tides the spring is covered by high water to the point that no upwelling is visible. The banks of the spring run channel are steep, grading directly up to the adjacent mesic flatwoods. There is no vegetation in the spring run itself except a few red, black and white mangroves that have established on shallow outcrops and at the bends in the creek. Plants at the top of the banks include live oak, saw palmetto, red cedar, wax myrtle and salt bush. Red-breasted mergansers (*Mergus serrator*) have been documented in the spring.

The second spring run stream is fed by Cauldron Spring. Like Salt Springs run, the water is tannic and brackish, with water levels fluctuating daily in response to tides. The length of the spring run is considered relatively short due to the overwhelming influence of tides. There is little exposed limestone in the run of the stream and no submerged vegetation. Like Salt Spring Run, the banks are steep and areas of erosion

and undercutting are visible. Mangroves have also established on shallow areas and plants growing on the high banks include live oak, slash pine, saw palmetto and wax myrtle.

The spring run for Whiskey Spring is very short and not on the natural community map. The substrate is organic mud and the standing water is tannic. The only vegetation noted in the water was crinum lily (*Crinum americanum*), with swamp fern present adjacent. The canopy around the spring is primarily cabbage palm, wax myrtle, laurel oak, American elm, dahoon holly and some Brazilian pepper.

General management measures: Cauldron Spring is immediately adjacent to a park road and receives runoff through a culvert that runs under the park road and drains a small ditch running east. Future management will include efforts to divert stormwater away from the spring, reduce impact of roads and monitor flows and water quality. Invasive exotic plants, such as Brazilian pepper, that have established along the upper banks of all springs should be treated. The spring run banks should be monitored for erosion and corrective actions taken if necessary.

AQUATIC CAVE

This natural community is subterranean and not represented on the Natural Communities Map.

Desired Future Condition: These submerged caves should continue to be relatively stable aquatic environments. This depends both on factors outside the park that affect groundwater flow and quality and daily tidal fluctuations that affect salinity, temperature and other water quality parameters. Light conditions should remain stable. The substrate and sediment should be protected from disturbance as much as possible during any cave exploration activities.

Description and assessment: There are at least two large subterranean aquatic caves in the park, associated with the Salt and Cauldron Springs. There are also a number of smaller karst features, such as Whiskey Spring, and several sinks in the park that likely have subterranean aquatic caves associated with them. The caves are formations that have resulted from dissolution of the upper limestone layer by slightly acidic water. The caves of Salt and Cauldron springs have been explored and some mapping done by divers, but not much is known yet about the caves' biotic environment. On-going exploration efforts by cave divers should investigate the water chemistry, sediments, geology and biota of the subterranean caves. Blind cave crayfish (*Cambarus* sp.) have been observed in the caves of Salt Spring.

General management measures: The aquatic caves will be protected against disturbance and alterations that may impact water flow and microclimate. Care should be taken prior to any construction on the surface to ensure no impacts to the

subterranean caves. Park staff should continue to work with other agencies, municipalities and the public to reduce impacts to flow and water quality of the groundwater flowing through the caves.

ESTUARINE SEAGRASS BED

Desired Future Condition: The estuarine seagrass beds of the park are dominated by turtle grass (*Thalassia testudinum*) and shoal grass (*Halodule wrightii*), interspersed with occasional manatee grass (*Syringodium filiforme*), hand grass (*Halophila engelmannii*), widgeon grass (*Ruppia maritima*) and macroalgae, such as *Sargassum* sp. The hydrology of the salt marsh should be protected to maintain the optimal levels of tidal and freshwater flows. Mosquito ditching in the salt marsh should be evaluated for restoration potential. Impacts from visitor use in the estuarine tidal creeks where seagrasses are present, or have the potential to be, should be monitored and prevented where possible. Appropriate signage, designated water trails and educational outreach will help to prevent damage to seagrasses.

Description and assessment: The seagrasses of the zero-energy Big Bend coastline make up the second largest near-shore seagrass bed in Florida (Dawes et al. 2004). Recent seagrass mapping using aerial photographic interpretation documented over 379,000 acres of seagrass beds in the Big Bend region, with over 46,000 acres in the Anclote/Pithlachascotee portion of the mapping area (Avineon 2009). Seagrass monitoring efforts within the park boundary have found turtle grass and shoal grass to be dominant with the less common hand grass and widgeon grass to be occasional. The estuarine seagrass beds occur in the tidal creeks and ponds of the salt marsh. The occurrence of seagrass in these areas is somewhat patchy but often dense and lush where it occurs. The seagrass cover is greatly reduced in deeper areas with more silt and mud type substrate. Limited mapping of this community at the park using Global Positioning System (GPS) equipment has been done. Estuarine seagrass beds provide cover for many invertebrates, numerous fish and ornate diamondback terrapins (*Malaclemys terrapin macrospilota*).

The potential for boat prop scars in the wider creeks, like Double Hammock Creek and Salt Springs Run Creek, is very high, and scarring has been observed. The water depth at low tide, especially winter low tides, further exacerbates scarring by boat operators unfamiliar with the area. Siltation from recreational airboat use is a concern and should be closely monitored, though the sheer velocity of flow in many of the tidal creeks appears to clear silt quickly. Visitor impacts upon opening the kayak and canoe launch on Salt Springs Run Creek should be monitored.

General management measures: Protection of the estuarine seagrass beds from prop scars and other visitor impacts is the highest management priority. At this time there is no signage designating the park boundary or educational language about seagrass protection. The promotion of paddle craft should help shift use to low impact boats in

the estuarine grass beds. Annual monitoring should continue in order to provide a source of baseline seagrass occurrence, as well as to provide an opportunity to assess the health and condition of the seagrasses. Prop scar mapping should be implemented to better quantify these impacts.

SALT MARSH

Desired Future Condition: The salt marsh is a complex mosaic influenced by topography, freshwater input and tidal flushing. The deeper parts of the marsh, at the edges of tidal creeks should continue to have patches of smooth cordgrass. The lowest parts of the vegetated marsh will continue to be dominated by vast expanses of black needle rush. The salt barrens should continue to be large, open patches of bare sand with patchy hypersaline tolerant vegetation, such as keygrass, glasswort (*Sarcocornia perennis*) and stunted forms of Christmas berry (*Lycium carolinianum*), black mangrove and buttonwood (*Conocarpus erectus*). The more landward portions of the marsh should continue to be dominated by herbaceous vegetation that tolerates some salt influence such as muhly grass (*Muhlenbergia capillaris*), Gulf or prickly cordgrass, and sand cordgrass, sawgrass, marsh gentian (*Eustoma exaltatum*), seaside goldenrod (*Solidago sempervirens*), water pimpernel and salt marsh aster (*Symphotrichum subulatum*). Shrubs such as mangroves should be rare. Alterations such as mosquito ditches should not be present and should be back filled and restored wherever possible. Invasive exotic plant species if present should be rare.

Description and assessment: This is by far the largest natural community in the park. In shallower marsh that has infrequent tidal flooding, the dominant plant species is black needle rush that is occasionally accompanied by large numbers of saltmarsh fimbry (*Fimbristylis spadicea*). Other plants in this shallower zone are Gulfcoast spikerush (*Eleocharis cellulosa*), giant leather fern, marsh elder, Christmas berry, sea blite (*Suaeda linearis*), glasswort, buttonwood and all three species of mangrove; but the woody species are not abundant here and are scattered singly or in small groups. Numerous other plants occur less obvious among the black needle rush and along mosquito ditches. In deeper areas, subject to regular tidal flooding, smooth cordgrass (*Spartina alternifolia*) is dominant. The marsh is interrupted by coastal islands, tidal creeks, open pools, open flats and mosquito ditches above mean high tide. Marian's marsh wrens (*Cistothorus palustris marianae*), Scott's seaside sparrows (*Ammodramus maritimus peninsulae*) and black rails (*Laterallus jamaicensis*) have all been documented as year round residents in the black needle rush marshes of the park.

Towards the landward side of the marsh, an increasing number of less salt tolerant plants appear with a concomitant reduction in salt-tolerant species. Examples include marshhay cordgrass (*Spartina patens*), Gulf or prickly cordgrass (*S. spartineae*) and sand cordgrass with a progressive increase in sawgrass. Also present are marsh gentian, seaside goldenrod, water pimpernel and salt marsh aster. Such plants are similar to those on the fringes of depression marshes and some marsh lakes, communities that

have little or no tidal influence. Here and in the adjoining parts of the black needle rush marsh, one can occasionally see outcrops of large, striated limestone boulders. They appear to be vestiges of "sunken karst" features that White (1970) mapped further north along the coast.

Within the salt marsh are "saltwater coastal flats" or simply "salt flats" or "salt barrens." These are a few inches higher in elevation than the surrounding or nearby densely graminoid-vegetated tidal marsh. Although they, as well as the black needle rush tidal marsh, can have hypersaline soils [12 percent-13 percent or 120 to 130 parts/thousand (U.S. Army Engineer Waterways Experiment Station 1978)] the higher ground of the salt barrens promotes higher evaporation of tidewater than occurs in the black needle rush marshes. This means the residual salt is left on dry ground instead of in shallow water. Furthermore, the black needle rush marshes have a broader range of salinity along the continuum to freshwater and can be considered brackish (U.S. Army Engineer Waterways Experiment Station 1978). Aerial photography and soil maps match up nicely as the salt barrens look "bleached out" from the air because they are sparsely vegetated (less than 25 percent). Vegetation in the salt barrens features a higher proportion of seashore saltgrass and especially keygrass and little or no black needle rush. If black needle rush is present at all in the salt flats, it is stunted. Stunted buttonwoods, which grow horizontally along the soil surface within the frost free zone also exist within the salt flats.

The salt flats are special natural features that exist within the park due to their unique vegetative qualities and bird nesting habitat. Wilson's plovers (*Charadrius wilsonia*), common nighthawks (*Chordeiles minor*) and willets (*Catoptrophorus semipalmatus*) have both been documented breeding on the salt barrens in the park.

The salt marsh habitat has been subject to a number of negative impacts. Historical mosquito ditching has resulted in a network of unnatural waterways that channel both tidal and freshwater sheet flow. The associated spoil mounds have provided habitat for establishment of woody vegetation in the normally herbaceous dominated landscape. Mangroves, shrubs like the threatened Florida mayten (*Maytenus phyllanthoides*), and invasive exotic species such as Brazilian pepper occur on the banks of the ditches. Analysis of aerial photography since the completion of the mosquito ditching projects shows a noticeable increase in the presence of mangroves along tidal creeks as well as around the open water ponds scattered throughout the salt marsh.

Currently over two miles of airboat trails cut through the black needle rush portions of the tidal marsh. There is typically little vegetation in the footprint of the trails, but pneumatophores (aerial roots) are present when black mangroves grow nearby. Several airboat trails currently bisect the available habitat where Scott's seaside sparrow and Marian's marsh wren have been observed. One study has documented that dividing the salt marsh into smaller areas by mosquito ditching has a negative impact on seaside

sparrows by reducing the number of territorial males located in a two and a half acre area from twenty to one (Post and Greenlaw, 1994). Additionally, when airboats are used off the trails they leave paths of laid-over black needle rush which does not recover except by new vegetative growth, therefore airboats should be restricted to the existing trails in the park, and potentially reducing airboat use to a smaller area through alternative trail placement, trail closures, buffer zones, or seasonal use should be explored.

Illegal motor vehicle access occurs sporadically in the northern portion of the park. Tire tracks indicate that vehicles access the park from behind developments along the park's eastern boundary. Salterns are targeted because the ground is open and vehicles pass easily. Park staff has worked with law enforcement and the neighboring communities to curtail these activities.

General management measures: Management will involve restoration of mosquito ditches to the extent possible. A coordinated effort should be made between park staff, FWC biologists, and the airboat user group to identify duplicative trails that could be potentially restored and replanted to promote the nesting success and population survival of the rare marsh bird species in the park. Access to the salt flats should be controlled during the nesting season by barricading trails, posting educational signs, and more law enforcement presence to protect these areas as special natural features of the park and promote fledgling success. Continued monitoring of wildlife will be imperative to identifying impacts from visitor use, facilities and resource management activities. Invasive exotic plants will require monitoring and treatment. Continuous monitoring for illegal activities within the salt flats, such as off-road vehicle use and artifact collection should occur, and corrective actions should be taken as necessary in coordination with FWC.

Prescribed fire, while a historically natural process, could disrupt bird-breeding territories if it reaches breeding territories in the salt marsh during the nesting season.

MANGROVE SWAMP

Desired Future Condition: The mangrove swamp should continue to persist as intermittent, narrow bands along the seaward side of the park. Red, white and black mangroves should continue to dominate, with other halophytic herbs present in the groundcover, including saltwort, glasswort and Carolina sealavender (*Limonium carolinianum*). Along the more estuarine tidal creeks, the mangrove swamp should continue to persist as intermittent, narrow bands of red mangroves with occasional white and black mangroves on mud and silt depositions along the creek banks. Smooth cordgrass should continue to persist in the deeper intertidal zones in the creeks. Periodic freezes, topographic variations, and tidal and salinity fluctuations should serve to restrict the expansion of this community into the adjacent salt marsh. Invasive exotic plant species if present should be rare.

Description and assessment: A more appropriate term this far north in Florida might be "mangrove fringe." This community is limited to shallow muddy substrates and storm deposited berms in the intertidal and supratidal zones, and in small patches along tidal creeks in the salt marsh. Along the Gulf, this band of small trees or shrubs extends several hundred yards inland, interrupted only occasionally by tidal creeks and small inlets. It is composed almost entirely of the three species of mangroves, with black mangrove being dominant. Unlike the mangrove swamp ecosystems of South Florida, there is no typical zonation. Here the red mangroves and white mangroves are intermixed, having been severely impacted by past freezes. Other common plants include smooth cordgrass and saltwort, along with needle rush on the sheltered side of the mangrove fringe. Primarily red mangroves have established on depositions of mud and silt along the low energy shorelines of Salt Springs Run Creek and Double Hammock Creek. Small clumps of mangroves are scattered throughout the salt marsh, but only in a few areas are they dense enough to map as a distinct natural community. Smooth cordgrass occurs intermittently in mangrove swamp in the deeper intertidal zone. Typical animals include pied-billed grebe (*Podilymbus podiceps*), Florida prairie warbler (*Dendroica discolor*), black-crowned night heron (*Nycticorax nycticorax*) and common snipe (*Gallinago gallinago*). Mangroves have also established on the banks of mosquito ditches and should be removed with the spoil.

An additional mangrove swamp area is present on the north end of the park adjacent to the Leisure Beach development. It is surrounded by spoil berms and several canals created at the time the subdivision was built. The berms to the south and west should be removed to facilitate water flow in the swamp. A mitigation project proposed by Pasco County may eventually remove the berms and restore seagrass community to the west. The berms to the north and east will be retained to reduce sedimentation in adjacent canals and to promote water quality in the park.

General management measures: Hydrologic changes at the park have probably facilitated the spread of mangroves, which in turn may negatively impact the salt marsh community. Restoration of mosquito ditches will lead to the removal of invading mangroves in the marsh. Removal of spoil berms on the west and south sides of the mangrove swamp at the north end of the park will improve habitat and water quality. Brazilian pepper is the most common exotic plant within the mangrove swamp and maintenance treatment will be required. Finally, a survey for Florida prairie warblers nesting or reproducing in the park should be conducted. Werner-Boyce may be the northernmost breeding range for this species.

ESTUARINE UNCONSOLIDATED SUBSTRATE

Desired Future Condition: The mud and silt dominated substrates should continue to be relatively free of submerged vegetation. Normal tidal and freshwater flows should be maintained to protect the invertebrate, fish and wading bird species that depend on

these communities. They should be protected from disturbance such as dredging or scouring.

Description and assessment: This community occurs intermingled with the salt marsh and estuarine seagrass beds. Portions of this community that are exposed during low tide, mainly along banks, could be called “mudflat.” Other portions of this community dispersed throughout the salt marsh that are too deep or turbid to allow the growth of seagrass would be better described as “mud bottom,” where organics and silt have accumulated, or as “sand bottom,” where tidal current keeps the substrate scoured. Estuarine tidal creeks and estuarine tidal lakes or ponds are also classified as estuarine unconsolidated substrate if they are found to have over 50 percent cover of mud or sand bottom. These habitats normally support numerous invertebrate species, wading birds, juvenile fishes and reptiles. Typical species include marine and estuarine invertebrates, great white egret, white ibis (*Eudocimus albus*), green heron (*Butorides virescens*), ornate diamondback terrapin and alligators (*Alligator mississippiensis*).

There is one brackish water pond located on the park’s south boundary that has been designated as estuarine unconsolidated substrate despite its location in the mesic hammock. The shallow pond appears in historical aerials to have been a depression marsh. The dredging of an adjacent wetland and associated drainage ditch on the north side of the brackish pond may have contributed to invasion by salt water. Currently the pond is open, brackish water bordered by black mangrove, marsh elder, leather fern, seashore dropseed (*Sporobolus virginicus*) and saltmarsh bulrush (*Schoenoplectus robustus*).

General management measures: Management of this community will be concurrent with management of the closely associated estuarine grass beds.

MARINE SEAGRASS BED

Desired Future Condition: Marine seagrass beds will occur on unconsolidated substrate in clear, coastal waters where wave energy is moderate. Turtle grass and shoal grass should continue to be the dominant plant species, interspersed with manatee grass or hand grass and macroalgae.

Description and assessment: Marine seagrass beds extend seaward to the western edge of the park boundary and beyond. They are in good condition. Dominant species are turtle grass and occasional shoal grass. Various algae are associated with these grass-like vascular plants. Species such as *Acanthophora* sp. (a red alga), *Caulerpa* sp. (a green alga), *Dictyota* sp. (a brown alga), *Halimeda* sp. (a green alga) and *Penicillus* sp. (a green alga) are common. Substrate is sand, sometimes with shell or silt. This saltwater aquatic wetland is distributed below the intertidal zone. The shoreward limit is apparently the elevation of the lower mean tide, and the seaward boundary is the limit of rooted plant growth. These areas are heavily used by numerous sport and commercial fish and

shellfish species and numerous wading birds and shorebirds. The saltwater aquatic wetland is important in the detrital food chain and in nutrient cycling. The distribution of seagrass within the marine seagrass beds is sparser than that of the estuarine seagrass beds. Annual seagrass monitoring in the marine seagrass beds at the park found that 77 percent of the monitoring points had sparse or patchy areal coverage compared to 13 percent of monitoring points in the estuarine seagrass beds where seagrass was present in 2010 (Gandy 2011).

General management measures: The marine seagrass beds generally tend to be deeper than the estuarine seagrass beds and, therefore, are less susceptible to prop scarring. However, the shallower areas nearshore should be monitored for prop scarring. Mapping programs to better document and quantify prop scarring occurrences should be implemented. Trash and debris, especially derelict crab traps, should be removed regularly.

MARINE UNCONSOLIDATED SUBSTRATE

Desired Future Condition: The marine unconsolidated substrate should continue to consist of expansive un-vegetated, open areas of unconsolidated substrate composed of sand, silt or mud. Dredged areas should not be present in this community.

Description and assessment: This community occurs on the gulf side of the park between the estuarine salt marsh and marine seagrass beds. It too is probably better known by its FNAI (1990) synonym of “mudflat.” These flats are mostly above the surface of the water at low tide although there is sometimes a subtidal zone that is exposed only during extreme low tides. They support numerous organisms, mostly invertebrates that constitute a rich source of food for several species of birds, such as the clapper rail (*Rallus longirostris*), roseate spoonbill (*Platalea ajaja*) and woodstork (*Mycteria americana*). At higher tides, these marine mudflats also provide shelter and habitat for fish.

General management measures: Management of this community will be concurrent with management of the closely associated marine seagrass beds.

CANAL/DITCH

Desired Future Condition: Canals and ditches within the park are considered a disturbed or altered landcover. Restoration, diversion or blocking of ditches or canals will be investigated to restore the historical hydrological conditions within the park to the extent possible. Any invasive plant species that have established because of canals or ditches should be removed as a part of any restoration. Replanting of native vegetation typical of the natural community where the ditch is located will likely also be required following any ditch or canal restoration.

Description and assessment: Currently there are only a few ditches and canals designated on the park's natural community map. At the very north end of the park, there is a canal within the park boundary that is associated with the adjacent dredge-and-fill development to the east. While a small stretch of the canal is within the boundary, it is the boat access for the adjacent community and no restoration is proposed. There is a small canal to the south that is also associated with the development and borders the west side of the mangrove swamp. This canal is currently proposed for restoration to a seagrass community as part of a Pasco County mitigation project.

Two canals in the central and southern part of the park drain municipal stormwater from the City of Port Richey. One is north of the Scenic Drive Trail and appears to connect to a large canal that originates east of U.S. Highway 19. The other is just south of the main entrance road and originates east of U.S. Highway 19. It eventually empties into Cauldron Spring. All the mosquito ditches in the park are also considered altered landcover. These ditches should be mapped and evaluated for restoration.

General management measures: An assessment is needed of all man-made ditches and canals in the park to determine which features can be restored. Park and district staff will need to work closely with local municipalities, including the PCMCD and stormwater management agencies as part of this effort. Funding should be sought to restore all man-made waterways in the park to the extent possible.

ARTIFICIAL POND

Desired Future Condition: The artificial pond, as a manmade depression marsh, should be dominated by emergent herbaceous vegetation. Trees and shrubs should occur in the deeper portions of the pond if present. There should be little accumulation of dead grassy fuels due to frequent burning; the soil surface should be visible through the vegetation when the community is not inundated. Dominant vegetation should include sand cordgrass, black needle rush and sawgrass.

Description and assessment: Currently the artificial pond on the south boundary is a borrow pit lake with little to no littoral zone. Surrounding vegetation includes leather fern, cabbage palm, red cedar, South Florida slash pine, cattails, a few black mangroves, seashore paspalum (*Paspalum vaginatum*), samphire (*Blutaparon vermiculare*), sea myrtle (*Baccharis halimifolia*) and saltwater falsewillow (*B. angustifolia*). Colonization of facultative halophytes from the adjacent brackish pond indicates the possible presence of brackish water.

General management measures: Historical aerial photographs indicate the artificial pond was a depression marsh as late as the early 1980s. The feasibility of restoring the pond to depression marsh should be evaluated, including restoring natural grade and native marsh vegetation. Invasive exotic plants and remnant spoil should be removed.

Climax vegetation should consist of herbaceous vegetation typical of depression marshes in the park such as sawgrass, sand cordgrass, bulltongue arrowhead, beak rushes, fimbry and waterhyssop.

CLEARING

Desired Future Condition: If no development or use is proposed for the clearing site, restoration will be required. The majority of the site appears to have historically been mesic flatwoods. As a result, the desired future condition for the site is that of intact mesic flatwoods. South Florida slash pine and occasional longleaf pine (*Pinus palustris*) should continue to dominate the canopy of the mesic flatwoods community. Herbaceous groundcover should be at least 50 percent. Saw palmetto (*Serenoa repens*) and other shrubs such as gallberry (*Ilex glabra*), staggerbush (*Lyonia fruticosa*) and shiny blueberry (*Vaccinium myrsinites*) should constitute less than 50 percent cover and should be less than 3 feet in height. There should not be any saw palmetto stems long enough to be lying along the ground. Invasive exotic plant species if present should be rare.

Description and assessment: The clearing is located east of the baygall community and originated as a dense growth of exotic plants from dumped landscape plants. This area has been cleaned up and the exotic vegetation mostly eliminated. Park staff will need to continue to work with residents in the adjacent community to prevent further dumping. This site is now maintained as a mowed clearing.

General management measures: Current management of the cleared area includes mowing, trash removal and treatment of any invasive exotic plants that may be present. Future management will depend on use. If the site is restored to mesic flatwoods, management measures will be the same as other mesic flatwoods in the park.

SPOIL AREA

Desired Future Condition: The spoil areas at the north end of the park are the result of deposition of dredge materials from the adjacent development to the east to form the boat access canals to the Gulf of Mexico. Total removal of the spoil may not be possible due to concerns about the integrity of the canals, as well as the quality of water within the canals, which may enter the park in greater volume if the spoil is removed. The spoil to the west and south of the mangrove swamp should be removed if there are no negative impacts to navigation or water quality. They should be returned to grade and replanted with appropriate salt marsh, mangrove swamp or seagrass plantings depending on location.

Description and assessment: The berms at present have been colonized with a number of native species such as red cedar, Florida privet, green buttonwood and cabbage palm. Currently a mitigation project is proposed to remove the western and southern berms of the created mangrove swamp in order to improve water flow and restore seagrass communities to the west. The project will also provide for the treatment of

invasive exotic plants, such as Brazilian pepper and Australian pine, that have colonized on the north and east berms.

General management measures: Treatment of invasive exotic plants on the berms is the primary management action at this time.

DEVELOPED

Desired Future Condition: Developed sites in the park are essential to the daily function of the park. All facilities will be maintained in good appearance and working order. Trailheads and use areas will be maintained in a safe clean condition for the use of park visitors. Priority invasive plant species (EPPC Category I and II species) will be removed from all developed areas. Other management measures include proper stormwater management and development guidelines that are compatible with prescribed fire management in adjacent natural areas.

Description and assessment: Development in the park is currently restricted mostly to the southwestern corner near Old Post Road. The park's interpretative center and boat ramp are next to the road. To the east are the park manager's residence and dock, shop complex and volunteer campsites. At present, the perimeters of these developments are maintained as mowed areas and no exotic plant species have been introduced aside from landscape sod. The first phase of visitor facilities has included a paved entrance road off U.S. Highway 19 at the southeastern corner of the park. Phase II will consist of completing the paved road and constructing facilities at the designated canoe and kayak launch site along Salt Springs Run Creek. The location of the future entrance station has been designated, but is currently maintained as a mowed area. The trailhead at Scenic Drive has a gravel parking lot, picnic tables and composting toilet. The trailhead at State Road 52 is an open mowed area for parking and has an interpretive kiosk.

General management measures: Management concerns for developed areas will be to restrict introduction of plant species not found in the park, to maintain facility appearance and upkeep and to protect from fire.

Imperiled Species

Imperiled species are those that are (1) tracked by FNAI as critically imperiled (G1, S1) or imperiled (G2, S2); or (2) listed by the U.S. Fish and Wildlife Service (USFWS), Florida Fish and Wildlife Conservation Commission (FFWCC) or the Florida Department of Agriculture and Consumer Services (FDACS) as endangered, threatened or of special concern.

Seven species of imperiled plants have been identified at the park. Of these, garberia, Tampa vervain (*Glandularia tampensis*) and pine lily (*Lilium catesbaei*) have been identified as directly benefiting from fire. Garberia is documented in the scrubby

flatwoods habitat around the Scenic Drive Trail, and pine lily has been documented in the mesic flatwoods east of the park shop. Pine lily will also benefit from maintaining a healthy hydrologic regime in the mesic flatwoods. Monitoring for this species should be done annually to help gauge the success of resource management of the mesic flatwoods in this part of the park. Tampa vervain is not frequently seen in the park, but the most recently documented site was found at the northeast corner of management zone WEB-17, following a wildfire. This species should be inventoried following prescribed burning, especially along maritime hammock/mesic flatwood ecotones.

Florida mayten is scattered throughout the salt barrens, having established primarily on the spoil along mosquito control ditches. Before any restoration, a survey should be made for the plants and a determination made if mitigation, such as relocating or avoiding the plants, will be required. Any plants found should be documented and mapped.

Several plants that are listed as commercially exploited by either FDACS or USFWS are present at the park. They are coontie (*Zamia pumila*), butterfly orchid and green-fly orchid (*Epidendrum magnoliae*). These plants are not included in Table 2, but will receive protection from disturbance and encroachment by invasive exotic plant species. The orchids will be mapped when they are located.

Two species of listed mammals that have been historically documented in the park are the Florida black bear (*Ursus americanus floridanus*) and the West Indian manatee (*Trichechus manatus*). Currently bears of the Chassahowitzka sub-population occur north of the park, but the landscape between the park and Chassahowitzka Wildlife Management Area is a barrier of urban development. As for the manatee, occurrence records are available, but there is no detailed information. There is no documentation of manatee use of the springs in the park.

The recent designation of the gopher tortoise as a threatened species by FFWCC will increase the attention paid to this species in several ways. Mapping of gopher tortoise burrows following prescribed fires will continue using FFWCC protocols. As the upland habitats of the park undergo prescribed burning and hydrologic restoration such as ditch filling, the mapping of burrows and monitoring for young tortoises will be important indicators of habitat suitability. Relocation of gopher tortoises must be in keeping with DRP guidelines.

Twenty-three species of imperiled birds have been documented within the park. The black needle rush has been documented as habitat for three bird species of special interest. Black rails have been documented as permanent residents of the needle rush marsh. These secretive birds are uncommon and part of the most southern of Florida's non-migratory population. Marian's marsh wrens, a species endemic to the Gulf Coast of Florida from Tampa Bay to Santa Rosa County (FFWCC 2003), are year-round

residents dependent on the salt marsh habitats of this low energy coast. Scott's seaside sparrows are also an endemic species to the Gulf Coast of Florida from Port Richey to St. Vincent Island (FFWCC 2003). The sparrows are also year-round residents, and the population in the park constitutes the southernmost range of this species.

Management actions for these species include regular monitoring, especially during the breeding and nesting season, as well as habitat maintenance. The marsh wrens will tolerate some woody shrub invasion of the marsh, but all three species depend exclusively on the rush and grass habitat of the salt marsh for nest building, shelter and feeding. The spread of woody shrubs should be controlled by periodic freezes and mosquito ditch restoration, but the marsh will need to be monitored regularly for shrub encroachment. Monitoring of populations will be critical to guide prescribed burning to avoid negative impacts on breeding. Any installation of park trails and boardwalks will need to be placed so as not to impact the habitat of these species.

Recreational use of airboats in the black needle rush marshes is a source of potential disturbance to the imperiled bird species. Locations of imperiled birds have been documented along several of the historical airboat trails in the black needle rush marsh. It has been documented that trails through the salt marsh can decrease the number of seaside sparrow pairs, however additional research that evaluates the impact of existing airboat trails on imperiled species populations within the park is needed (Post and Greenlaw, 1994). A coordinated effort should be made between park staff, FWC biologists, and the airboat user group to identify duplicative trails that could be potentially restored and replanted to promote the nesting success and population survival of the rare marsh bird species in the park.

The salt barrens interspersed in the salt marsh have been documented as breeding sites for Wilson's plovers and willets. While neither of these birds is endemic to the region, the salt barren habitat provides safer refuge for breeding than many beach areas, which can be subject to frequent human disturbance. The Wilson's plovers nest in the open sandy flats in shallow scrapes, while the willets nest under small clumps of vegetation scattered throughout the salt barrens on points of slightly elevated substrate. Management actions for these species will include regular monitoring during the nesting season, especially following high tide storm events. The salt barrens are not normally subject to visitor impacts due to their remoteness, but illegal motor vehicle disturbance on the salterns in the northern part of the park has been documented. Park trails and boardwalks should be placed so as not to impact the habitat of these birds and access to the salt flats should be controlled during the nesting season by barricading trails and posting educational signs.

Although no longer considered imperiled, it should be noted that one pair of Southern bald eagles (*Haliaeetus leucocephalus*) has a nest in the southern portion of the park. Three other active eagle nests have been documented in the more remote northern part

of the park. All management guidelines in FFWCC’s Bald Eagle Management Plan will be followed in determining appropriate resource management and visitor activities in proximity to the nest (FFWCC 2008). American oystercatchers (*Haematopus palliatus*) and Caspian terns (*Sterna caspia*) use offshore flats as resting areas. Woodstorks, roseate spoonbills and white ibis have been observed feeding in the estuarine tidal flats.

Table 2 contains a list of all known imperiled species within the park and identifies their status as defined by various entities. It also identifies the types of management actions that are currently being taken by DRP staff or others and identifies the current level of monitoring effort. The codes used under the column headings for management actions and monitoring level are defined following the table. Explanations for federal and state status as well as FNAI global and state rank are provided in Addendum 6.

Detailed management goals, objectives and actions for imperiled species in this park are discussed in the Resource Management Program section of this component and the Implementation Component of this plan.

Table 2: Imperiled Species Inventory						
Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FFWCC	USFWS	FDACS	FNAI		
PLANTS						
Garberia <i>Garberia heterophylla</i>	LT				1, 2, 10, 13	Tier 1
Tampa vervain <i>Glandularia tampensis</i>	LE			G2/S2	1, 2, 10, 13	Tier 2
Pine lily <i>Lilium catesbaei</i>	LT				1, 2, 4, 8, 10, 13	Tier 2
Angularfruit milkvine <i>Gonolobus suberosus</i>	LT				2, 4, 8, 10, 13	Tier 1
Florida mayten <i>Maytenus phyllanthoides</i>	LT				2, 3, 9, 10, 13	Tier 1
Erect prickly pear <i>Opuntia stricta</i>	LT				1, 2, 10, 13	Tier 1
Giant airplant <i>Tillandsia utriculata</i>	LE				2, 4, 10, 13	Tier 1
REPTILES						
American alligator <i>Alligator mississippiensis</i>	LS	T(S/A)		G5/S4	4, 9, 10, 13	Tier 1

Table 2: Imperiled Species Inventory

Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FFWCC	USFWS	FDACS	FNAI		
Gopher tortoise <i>Gopherus polyphemus</i>	LT			G3/S3	1, 2, 4, 7, 8, 10, 13	Tier 3
BIRDS						
Eastern brown pelican <i>Pelecanus occidentalis carolinensis</i>	LS			G4/S3	2, 4, 8, 10, 13	Tier 1
Magnificent frigatebird <i>Fregeata magnificens</i>				G5/S1	4, 13	Tier 1
Little blue heron <i>Egretta caerulea</i>	LS			G5/S4	2, 4, 8, 10, 13	Tier 1
Reddish egret <i>Egretta rufescens</i>	LS			G4/S2	2, 4, 8, 10, 13	Tier 1
Snowy egret <i>Egretta thula</i>	LS			G5/S3	2, 4, 8, 10, 13	Tier 1
Tricolored heron <i>Egretta tricolor</i>	LS			G5/S4	2, 4, 8, 10, 13	Tier 1
Wood stork <i>Mycteria americana</i>	LE	LE		G4/S2	2, 4, 8, 10, 13	Tier 1
White ibis <i>Eudocimus albus</i>	LS			G5/S4	2, 4, 8, 10, 13	Tier 1
Roseate spoonbill <i>Platalea ajaja</i>	LS			G5/S2	2, 4, 8, 10, 13	Tier 1
Swallow-tailed kite <i>Elanoides fortificatus</i>				G5/S2	4, 10, 13	Tier 1
Short-tailed hawk <i>Buteo brachyurus</i>				G4G5/S1	4, 10, 13	Tier 1
Peregrine falcon <i>Falco peregrinus</i>				G4/S2	4, 10, 13	Tier 1
Merlin <i>Falco columbarius</i>				G5/S2	4, 10, 13	Tier 1
Black rail <i>Laterallus jamaicensis</i>				G4/S2	2, 4, 8, 10, 13	Tier 2
American oystercatcher <i>Haematopus palliatus</i>	LS			G5/S2	2, 4, 8, 10, 13	Tier 1
Wilson's plover <i>Charadrius wilsonia</i>				G5/S2	2, 4, 8, 10, 13	Tier 2
Least tern <i>Sterna antillarum</i>	LT			G4/S3	2, 4, 8, 10, 13	Tier 1

Table 2: Imperiled Species Inventory						
Common and Scientific Name	Imperiled Species Status				Management Actions	Monitoring Level
	FFWCC	USFWS	FDACS	FNAI		
Caspian tern <i>Sterna caspia</i>				G5/S2	2, 4, 8, 10, 13	Tier 1
Marian's marsh wren <i>Cistothorus palustris marianae</i>	LS			G5T3/S3	2, 4, 8, 10, 13	Tier 2
Worm-eating warbler <i>Helmithorus vermivora</i>				G5/S1	2, 4, 8, 10, 13	Tier 1
Louisiana waterthrush <i>Seiurus motacilla</i>				G5/S2	4, 10, 13	Tier 1
American redstart <i>Setophaga ruticilla ruticilla</i>				G5/S2	2, 4, 8, 10, 13	Tier 1
Scott's seaside sparrow <i>Ammodramus maritimus peninsulae</i>	LS			G4TSQ/S3	2, 4, 6, 8, 10, 13	Tier 2
MAMMALS						
Florida black bear <i>Ursus americanus floridanus</i>	LT			G5T2/S2	1, 2, 4, 10, 13	Tier 1
West Indian manatee <i>Trichechus manatus</i>	LE	LE		G2/S2	4, 10, 13	Tier 1

Management Actions:

1. Prescribed Fire
2. Exotic Plant Removal
3. Population Translocation/ Augmentation/ Restocking
4. Hydrological Maintenance/ Restoration
5. Nest Boxes/ Artificial Cavities
6. Hardwood Removal
7. Mechanical Treatment
8. Predator Control
9. Erosion Control
10. Protection from visitor impacts (establish buffers)/ Law Enforcement
11. Decoys (shorebirds)
12. Vegetation Planting
13. Outreach and Education

Monitoring Level:

- Tier 1** Non-Targeted Observation/Documentation: Includes documentation of species presence through casual/passive observation during routine park activities (i.e. not conducting species-specific searches). Documentation may be in the form of *Wildlife Observation Forms*, or other district specific methods used to communicate observations.
- Tier 2** Targeted Presence/Absence: Includes monitoring methods/activities that are specifically intended to document presence/absence of a particular species or suite of species.
- Tier 3.** Population Estimate/Index: An approximation of the true population size or population index based on a widely accepted method of sampling.
- Tier 4** Population Census: A complete count of an entire population with demographic analysis, including mortality, reproduction, emigration, and immigration.
- Tier 5** Other: May include habitat assessments for a particular species or suite of species or any other specific methods used as indicators to gather information about a particular species.

Exotic Species

Exotic species are plants or animals not native to Florida. Invasive exotic species are able to out-compete, displace or destroy native species and their habitats, often because they have been released from the natural controls of their native range, such as diseases, predatory insects, etc. If left unchecked, invasive exotic plants and animals alter the character, productivity and conservation values of the natural areas they invade.

The most problematic invasive exotic plant species in the park at present are cogon grass, Brazilian pepper and leadtree. Cogon grass continues to invade new areas, likely facilitated by prescribed burning and mechanical treatments, as well as road and fireline maintenance. Control will be achieved through a combination of vigilance, rapid treatment and prevention. Special attention will be given to surveying areas following prescribed burning since the cogon grass, if present, will re-sprout within weeks and likely flower soon after. Any areas that are to be mowed or treated mechanically should be initially surveyed for cogon grass to reduce risk of spread.

Control of Brazilian pepper trees will be challenging. The seasonally wet environment at the park allows for very favorable growing conditions. The salt tolerance of Brazilian pepper has enabled it to establish on small soil mounds in the salt marsh and on the perimeter of maritime hammock islands. These sites are often accessible only by airboat.

The leadtrees are mostly limited to locations where the park's eastern boundary abuts highly urbanized areas. These trees are prolific seed producers that also benefit from the

seasonally wet conditions at the park. Other problematic invasive plants include lantana, paper mulberry, guinea grass and rosary pea.

To date, all known invasive plant infestations have been included in the Florida Park Service's statewide Invasive Exotic Plant Database (IEPDB). Updates to these existing infestations are planned every one to two years, along with the addition of newly discovered infestations. An annual work plan is developed for the park at the start of each fiscal year to establish specific invasive plant treatment goals for the coming year.

Much progress has been made at the park in the area of exotic plant treatment since the 2001 Unit Management Plan update. The park has treated an average of 69 acres of exotic plants annually over the last ten years. The volunteer program at the park has been a critically important part of exotic plant treatment efforts. The park has also hosted exotic plant treatment workdays with staff and volunteers from other parks. In 2011 and 2012, the park had an individually placed Americorps member dedicated to resource management that assists with exotic plant treatment. OPS funding and grant funding have also been used for exotic plant control and will continue to be used as available.

In 2005, a mitigation project by Tampa Bay Water west of the Black Rail Trail resulted in treatment of 25 acres of Brazilian pepper, primarily in the salt marsh community. An additional phase of the project hydroblasted 30,000 square feet of mosquito ditch spoil down to grade, removing the Brazilian pepper that had established. A mitigation project currently proposed for the north end of the park by Pasco County will provide for the treatment of Brazilian pepper and Australian pine on a portion of the spoil berms around the created mangrove swamp.

Table 3 contains a list of the Florida Exotic Pest Plant Council (FLEPPC) Category I and II invasive exotic plant species found within the park (FLEPPC 2011). The table also identifies relative distribution for each species and the management zones in which they are known to occur. An explanation of the codes is provided following the table. For an inventory of all exotic species found within the park, see Addendum 5.

Exotic animal species include non-native wildlife species, free ranging domesticated pets or livestock and feral animals. Because of the negative impacts to natural systems attributed to exotic animals, DRP actively removes exotic animals from state parks, with priority being given to those species causing ecological damage.

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	FLEPPC Category	Distribution	Management Zone
Rosary pea <i>Abrus precatorius</i>	I	2	WEB-02
Mimosa <i>Albizia julibrissin</i>	I	2	WEB-08
Alligatorweed <i>Alternanthera philoxeroides</i>	II	2	WEB-02
Paper mulberry <i>Broussonetia papyrifera</i>	II	1	WEB-02, WEB-03, WEB-11, WEB-17
		2	WEB-09, WEB-13, WEB-18, WEB-22
Australian pine <i>Casuarina equisetifolia</i>	I	1	WEB-08, WEB-14, WEB-18, WEB-20
		2	WEB-05, WEB-12, WEB-13, WEB-16, WEB-18
Camphortree <i>Cinnamomum camphorata</i>	I	2	WEB-04, WEB-08, WEB-17
Wild taro <i>Colocasia esculenta</i>	I	2	WEB-15
		3	WEB-09,
Umbrella flatsedge <i>Cyperus involucratus</i>	II	1	WEB-01
Air-potato <i>Dioscorea bulbifera</i>	I	2	WEB-05, WEB-09, WEB-12, WEB-13, WEB-18,
		3	WEB-04, WEB 21
		4	WEB-02, WEB-03
Water hyacinth <i>Eichhornia crassipes</i>	I	2	WEB-03
Hydrilla <i>Hydrilla verticillata</i>	I	2	WEB-09
Cogon grass <i>Imperata cylindrica</i>	I	1	WEB-07
		2	WEB-16, WEB-18
		3	WEB-02, WEB-04, WEB-08, WEB-13, WEB-17, WEB-19, WEB-21
		4	WEB-18
		5	WEB-08
Brazilian jasmine <i>Jasminum fluminense</i>	I	2	WEB-20

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	FLEPPC Category	Distribution	Management Zone
Dotted duckweed <i>Landoltia punctata</i>	II	2	WEB-02
Lantana <i>Lantana camara</i>	I	2	WEB-02, WEB-08, WEB-13, WEB-16, WEB-17, WEB-18, WEB-19, WEB-21
White leadtree <i>Leucanea leucocephala</i>	II	2	WEB-03, WEB-04, WEB-05, WEB-07, WEB-08, WEB-09, WEB-11, WEB-15
		3	WEB-03, WEB-05, WEB-08, WEB-09, WEB-18, WEB-19, WEB-21
		4	WEB-18, WEB-21
Peruvian primrose-willow <i>Ludwigia peruviana</i>	I	1	WEB-32
Japanese climbing fern <i>Lygodium japonicum</i>	I	1	WEB-12
		2	WEB-02
Melaleuca <i>Melaleuca quinquenervia</i>	I	2	WEB-08, WEB-20, WEB-22, WEB-24, WEB-28
Chinaberry tree <i>Melia azedarach</i>	II	1	WEB-02, WEB-07, WEB-18
		2	WEB-09, WEB-21
Guinea grass <i>Panicum maximum</i>	II	2	WEB-21
Torpedo grass <i>Panicum repens</i>	I	2	WEB-32
Water lettuce <i>Pistia stratiotes</i>	I	1	WEB-09
Chinese ladder brake <i>Pteris vittata</i>	II	1	WEB-24
Castorbean <i>Ricinus communis</i>	II	2	WEB-09
Chinese tallow tree <i>Sapium sebiferum</i>	I	1	WEB-02
		2	WEB-05, WEB-08
Brazilian pepper <i>Schinus terebinthifolius</i>	I	1	WEB-07, WEB-09, WEB-29, WEB-31

Table 3: Inventory of FLEPPC Category I and II Exotic Plant Species			
Common and Scientific Name	FLEPPC Category	Distribution	Management Zone
		2	WEB-01, WEB-02, WEB-03, WEB-04, WEB-05, WEB-07, WEB-08, WEB-09, WEB-11, WEB-13, WEB-14, WEB-16, WEB-18, WEB-22, WEB-23, WEB-25, WEB-28
		3	WEB-08, WEB-12, WEB-13, WEB-15, WEB-16, WEB-17, WEB-18, WEB-19, WEB-21, WEB-24,
		4	WEB-17, WEB-19, WEB-21
		6	WEB-06
Tropical soda apple <i>Solanum viarum</i>	I	2	WEB-02
Creeping oxeye <i>Sphagneticola trilobata</i>	II	2	WEB-18
Caesarweed <i>Urena lobata</i>	I	2	WEB-05, WEB-12, WEB-13
Elephant ear <i>Xanthosoma sagittifolium</i>	II	2	WEB-09

Distribution Categories:

- 0 No current infestation: All known sites have been treated and no plants are currently evident.
- 1 Single plant or clump: One individual plant or one small clump of a single species.
- 2 Scattered plants or clumps: Multiple individual plants or small clumps of a single species scattered within the gross area infested.
- 3 Scattered dense patches: Dense patches of a single species scattered within the gross area infested.
- 4 Dominant cover: Multiple plants or clumps of a single species that occupy a majority of the gross area infested.
- 5 Dense monoculture: Generally, a dense stand of a single dominant species that not only occupies more than a majority of the gross area infested, but also covers/excludes other plants.
- 6 Linearly scattered: Plants or clumps of a single species generally scattered along a linear feature, such as a road, trail, property line, ditch, ridge, slough, etc. within the gross area infested.

In some cases, native wildlife may also pose management problems or nuisances within state parks. A nuisance animal is an individual native animal whose presence or activities create special management problems. Examples of animal species from which nuisance cases may arise include raccoons, venomous snakes and alligators that are in public areas. Nuisance animals are dealt with on a case-by-case basis.

Exotic or non-indigenous and nuisance animals are removed as necessary to protect the integrity of natural communities and native wildlife populations. Feral hog (*Sus scrofa*) and isolated signs of feral hog damage were noted shortly after land acquisition. While feral hogs were a problem historically, a program of active removal by a hog contractor has virtually eliminated this species from the park. In addition, sustained removal efforts were conducted by trained park staff. Following the initial feral hog removal efforts, signs of damage have been reduced. An on-going maintenance program by park staff should keep the hog population at the lowest possible level. Park staff has communicated and coordinated removal efforts with the adjacent FFWCC and private hunt lease managed properties to the north and northeast. Sustained feral hog removal efforts are on-going at these adjacent properties.

Lack of continuity with other natural areas has severed access by feral hogs, but park staff has observed evidence of deliberate introduction of at least one feral hog to the park. This type of activity will be monitored closely in coordination with park patrol and local law enforcement. Trained park staff will continue routine monitoring of the park's wetland natural communities with priority given to areas with histories of hog occurrence.

Feral cats have been removed from the park in several locations. Cats can be particularly devastating to songbird and small mammal populations and will be removed as observed or reported.

Detailed management goals, objectives and actions for management of invasive exotic plants and exotic and nuisance animals are discussed in the Resource Management Program section of this component.

Special Natural Features

The park has several special natural features. The main features are the two artesian springs, Salt Spring and Cauldron Spring. The large and relatively undisturbed salt barrens scattered throughout the salt marsh are also significant features as these have become quite rare in this part of the state. The overall vista of the park, especially the view from the west, offers a visually aesthetic picture of "Old Florida" that is now very rare in this area.

Cultural Resources

This section addresses the cultural resources present in the park that may include archaeological sites, historic buildings and structures, cultural landscapes and

collections. The Florida Department of State (FDOS) maintains the master inventory of such resources through the Florida Master Site File (FMSF). State law requires that all state agencies locate, inventory and evaluate cultural resources that appear to be eligible for listing in the National Register of Historic Places. Addendum 7 contains the FDOS, Division of Historical Resources (DHR) management procedures for archaeological and historical sites and properties on state-owned or controlled properties; the criteria used for evaluating eligibility for listing in the National Register of Historic Places, and the Secretary of Interior's definitions for the various preservation treatments (restoration, rehabilitation, stabilization and preservation). For the purposes of this plan, significant archaeological site, significant structure and significant landscape means those cultural resources listed or eligible for listing in the National Register of Historic Places. The terms archaeological site, historic structure or historic landscape refer to all resources that will become 50 years old during the term of this plan.

Condition Assessment

Evaluating the condition of cultural resources is accomplished using a three-part evaluation scale, expressed as good, fair and poor. These terms describe the present condition, rather than comparing what exists to the ideal condition. Good describes a condition of structural stability and physical wholeness, where no obvious deterioration other than normal occurs. Fair describes a condition in which there is a discernible decline in condition between inspections, and the wholeness or physical integrity is and continues to be threatened by factors other than normal wear. A fair assessment is usually a cause for concern. Poor describes an unstable condition where there is palpable, accelerating decline, and physical integrity is being compromised quickly. A resource in poor condition suffers obvious declines in physical integrity from year to year. A poor condition suggests immediate action is needed to reestablish physical stability.

Level of Significance

Applying the criteria for listing in the National Register of Historic Places involves the use of contexts as well as an evaluation of integrity of the site. A cultural resource's significance derives from its historical, architectural, ethnographic or archaeological context. Evaluation of cultural resources will result in a designation of NRL (National Register or National Landmark Listed or located in an NR district), NR (National Register eligible), NE (not evaluated) or NS (not significant) as indicated in the table at the end of this section.

There are no criteria for use in determining the significance of collections or archival material. Usually, significance of a collection is based on what or whom it may represent. For instance, a collection of furniture from a single family and a particular era in connection with a significant historic site would be considered highly significant. In the same way, a high quality collection of artifacts from a significant archaeological site would be of important significance. A large herbarium collected from a specific park

over many decades could be valuable to resource management efforts. Archival records are most significant as a research source. Any records depicting critical events in the park's history, including construction and resource management efforts, would all be significant.

The following is a summary of the FMSF inventory. In addition, this inventory contains the evaluation of significance. There are no documented historic structures in the park.

Prehistoric and Historic Archaeological Sites

Desired future condition: All significant archaeological sites within the park that represent Florida's cultural periods or significant historic events or persons are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: The Florida Master Site File (FMSF) lists 29 cultural sites identified within Werner-Boyce Salt Springs State Park. Some of these sites have revealed evidence of short-term prehistoric human occupation dating back to the Paleoindian Period (ca. 10,000-7,500 BCE) and Archaic Period (ca. 7,500-500 BCE) while others show evidence of more recent historic activities. No sites identified to date provide any definitive evidence of long-term prehistoric occupation within the area of the state park. The gently sloping topography and geologic history of a much wider pre-sea level rise coastline provide evidence for potential settlement further west, in areas that are now submerged. Other factors, such as the lack of abundant freshwater in the park, may have made the area unfavorable for permanent occupation compared to nearby rivers and springs that are located north and south of the park, along the coast. Chert inclusions within exposed Suwannee limestone outcrops located within the park would have been favorable for quarrying tool-making material and may account for the evidence of temporary occupation.

Following the Conservation and Recreational Lands (CARL) acquisition, a Phase I survey was undertaken in 1997 while the property was managed by Pasco County. The survey documented 18 new archaeological sites (Memory and Newman 1997). The survey focused primarily on areas with good probability for the occurrence of cultural sites such as maritime hammock islands in the salt marsh and along creek banks.

Prior to the 1997 survey, only Salt Spring (PA00115) had been identified on the park property. It was originally described by White (1982) as a temporary campsite, possibly Weeden Island period that may have been used for seasonal food procurement. The site is reported to have both prehistoric and historic associations. Local historians have also reported that this area was the location of a portion of the historic Davenport Road that was cleared in 1838-1839 from Fort Cross near Brooksville to Fort Brooke in Tampa (Pasco County Historical Preservation Society No date). It has also been reported to be the location of Hopeville, the first settlement in Pasco County, as well as the site of a

successful Civil War era salt works (Memory and Newman 1997; Pasco County Historical Preservation Society No date). No direct evidence exists to date of the historic uses at the site, but a historical road heading south from the spring is still open. The prehistoric evidence was considered to be highly disturbed and in poor condition at the time of the last survey. In 1997, as part of the acquisition survey, the Salt Spring site was evaluated and relocated.

Ten sites identified during the Phase I survey contained artifacts of prehistoric lithic scatter, much of which was classified as “lithic debitage” or the stone byproducts of prehistoric tool making. These sites were primarily located on the banks of tidal creeks or the edges of maritime hammock islands where they are highly susceptible to degradation from erosion and possible looting. One site, North of Energy (PA00569) was found to contain not only lithic debitage, but also chert tools and a Deptford Check Stamped sherd (ca. 700 BC-200 AD), indicating multiple periods of human occupation. These sites were all considered to be in good condition.

Several sites were identified as prehistoric chert quarries of local Suwannee limestone. These are characterized by the presence of chert flakes with or without exposed chert outcrops. Three of these sites, Blue Plate Quarry (PA00578), Chunk-O-Chert (PA00579) and Dover (PA00580), were in close proximity to dredged mosquito ditches and could be impacted by ditch maintenance or restoration activities.

One prehistoric quarry site, Mystery (PA00582), was determined to be a shell midden of unknown age. The midden was characterized by mounded oyster shell, but no other artifacts characteristic of middens were found. This site was determined to be at risk of erosion due to proximity to a tidal creek as well as possible looting.

In October 2000, a volunteer archeologist identified ten additional sites (PA00599-PA00608) with the potential to have cultural significance. Most of these locations were in areas with a good probability to contain cultural sites and found some evidence of artifact hunting, recent campsites, shell deposits or rock outcroppings. All of these sites need further evaluation to determine if they are really archaeological sites. An additional site (PA02119) was identified in November 2004 with a distinct rock “pier” that appeared to be broken or worked stone along with stone flakes or chips. One site, Lonely Point (PA00575), is immediately outside the park boundary, and further investigation would be required to determine its exact location.

Condition Assessment: As discussed above, the cultural sites at the park are in varying stages of condition. The most recent site assessment results from 2011 are listed in Table 4. The majority of cultural sites are in good condition.

At present, three sites, Salt Spring (PA0115), Mystery (PA0582) and Burts Pier (PA02119), are considered to be in poor condition. Salt Spring was observed to be

mostly exposed limestone due to surface erosion of the topsoil and no prehistoric artifacts were found (Memory and Newman 1997). The site has experienced intermittent low-intensity recreational use over time, and the site conditions remain the same.

Burt's Pier and Mystery are both in poor condition due to erosion. Their respective location on the banks of tidal creeks has made them susceptible to erosion from boat wakes and natural daily tidal flow.

Level of Significance: Eighteen of the park's recorded cultural resources are prehistoric sites located on hammock islands that possess the collective potential to yield important information about lithic quarrying and tool manufacturing along this part of the Gulf Coast. All of these sites have been recorded as having insufficient information to evaluate their significance, but it is possible that additional research will demonstrate that they qualify as eligible for listing on the National Register of Historic Places as an archaeological district.

General management measures: At this time, the majority of the cultural sites in the park are in good condition. Management measures will consist of annual to biennial monitoring of each cultural site for signs of erosion or looting. The locations of all sites are known and will be protected from resource management activities that may disturb them, such as prescribed burning, mosquito ditch restoration or exotic plant control efforts. A Site Assessment Form will be completed for each site to document its current condition.

The three sites that are considered to be in poor condition due to erosion will continue to be monitored on an annual to biennial schedule. Consultation with BNCR early in the plan cycle and/or DHR staff is needed to determine appropriate preservation measures for these sites. Protective measures for Salt Springs (PA0115) will need to be in place prior to any future recreational or research diving to prevent further site degradation, and there is a continuous need for additional law enforcement to protect these sites against looters.

Historic Structures

Desired future condition: All significant historic structures and landscapes that represent Florida's cultural periods or significant historic events or persons are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: The park does not contain any historic buildings or structures.

Collections

Desired future condition: All historic, natural history and archaeological objects within the park that represent Florida's cultural periods, significant historic events or persons, or natural history specimens are preserved in good condition in perpetuity, protected from physical threats and interpreted to the public.

Description: The park maintains a collection of cultural artifacts and natural history specimens. The majority of the cultural artifacts are pieces of limestone, chert and projectile points that are on loan to the park. None of the artifacts is known to have come from the park, but is thought to be representative of the geologic resources within the park that would have been available to native peoples. Some of the rock pieces are thought to have been hammer stones.

Several pieces in the collection are artifacts of turpentine production. There is a clay Herty cup and two blades from hand tools used to hack bark, possibly a Pringle ax or pull-down scraper. These pieces were donated to the park and were not found there. A stump with pocket cuts was found in the park following a prescribed burn and was removed to the park office for interpretation. The stump bears a series of angled cuts at its base, made to extract resin.

The park has three 50-caliber bullet shells that were also found following a prescribed burn in the southern portion of the park. The markings on the shells indicate they were manufactured in 1943. The source of the shells at the park is not known nor how long the shells had been there. A hubcap and pipe were also found in the park and are stored at the park office.

The remainder of the park's collection consists of natural history specimens. There are several sea turtle skulls, small mammal skulls, a shark jaw and shells from small turtles, like box turtles. There are two specimens preserved, presumably in formalin or similar preservative: a juvenile black racer snake and a small scarlet kingsnake. The park has a collection of mounted insects that were collected by a volunteer entomologist who is currently refurbishing it. There are five mounts done by a former park ranger from mammals found killed by cars near the park. There is a coyote, a possum, two gray foxes and a raccoon. The mounts are currently on permanent loan to the park by the ranger but have not been formally donated.

Condition Assessment: All of the park collections are considered to be in good condition. They are almost all kept at the interpretive center which is enclosed and climate controlled. All the natural history specimens are on display in the center and available for interpretation during events. Several are also taken to off-site interpretive programs several times a year as warranted. The limestone, chert and projectile point collections are not yet on display but are stored in such a way as to prevent any degradation. The shells, hubcap and pipe are stored in the climate controlled park

office. The pocket cut stump and shell casings are stored at the park office. The stump is kept outdoors but is presumed not to be susceptible to environmental degradation.

Level of Significance: The historical artifacts in the park's collection have interpretive significance due to their representation of various historical eras. The height of turpentine in Florida in the early 20th century is a period of significant cultural and economic development in the state's history. Artifacts from that period including standing cat-faced pine trees are protected and interpreted where possible. While the history and origin of the gun shells may never be known, they are representative of the WWII era.

The geologic artifacts in the collection are significant as representative of the resources available to native peoples for tools and tool making during periods of short-term occupation in the area of the park. These are important for interpretation purposes as most of the exposed chert and chert quarries within limestone outcrops in the park are often not easily accessible by visitors or occur in sensitive habitats so the ability to interpret these resources from artifacts is very beneficial.

The natural history pieces in the collection are significant as representative of the species found in or near the park for interpretive purposes. The impact of a person being able to see and even touch an animal's coat or bones can be a powerful tool in helping them to understand and appreciate their natural environment. Natural history collections are a valuable asset to any interpretive program.

General management measures: At present, a Scope of Collections Statement has not been developed for the park. There is no comprehensive in-house list of what the park has, where the items came from or what their significance is. A full inventory of all items in the collection should be developed and maintained.

A labeling system for each item in the collection is needed. For natural history specimens, the label should include the common and scientific name and other pertinent information such as where it was collected and why. For cultural items, the type and significance of the object, cultural period, location of collection, if known, and the identity of a contact person(s) that provided the expertise on the item.

There is a need for additional staff training for collections management and Archeological Resource Monitoring (ARM). This training would facilitate proper record keeping and cultural resource assessment.

Detailed management goals, objectives and actions for the management of cultural resources in this park are discussed in the Cultural Resource Management Program section of this component. Table 4 contains the name, reference number, culture or period and brief description of all the cultural sites within the park that are listed in the

Florida Master Site File. The table also summarizes each site's level of significance, existing condition and recommended management treatment. An explanation of the codes is provided following the table.

Table 4: Cultural Sites Listed in the Florida Master Site File					
Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
PA00115 Salt Spring	Nineteenth century American, 1821-1899; Twentieth century American, 1900-present; Prehistoric; Weeden Island, AD 450-1,000	Archaeological Site	NE	P	P
PA00566 Styrofoam Hammock	Prehistoric lacking pottery; Prehistoric	Archaeological Site	NE	F	P
PA00567 Doorshutter Pond	Archaic, 8,500 BC-1,000 BC; Prehistoric	Archaeological Site	NE	G	P
PA00568 Gilligan's Island	Twentieth century American, 1900-present; Twentieth century American, 1900-present; Prehistoric	Archaeological Site	NE	G	P
PA00569 North of Energy	Prehistoric lacking pottery; Deptford, 700 BC-300 BC; Prehistoric lacking pottery;	Archaeological Site	NE	G	P
PA00570 Little Pepper	Prehistoric lacking pottery;	Archaeological Site	NE	G	P
PA00571 Pepper Heaven	Twentieth century American, 1900-present; Prehistoric lacking pottery;	Archaeological Site	NE	G	P
PA00572 Prickly Pear	Twentieth century American, 1900-present;	Archaeological Site	NE	G	P
PA00573 Double Isle	Twentieth century American, 1900-present; Prehistoric	Archaeological Site	NE	F	P

Table 4: Cultural Sites Listed in the Florida Master Site File

Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
PA00574 Three Palm Hammock	Nineteenth century American, 1821-1899; Prehistoric	Archaeological Site	NE	Not recently located	P
PA00576 Long Leaf	Prehistoric lacking pottery;	Archaeological Site	NE	F	P
PA00577 Skimmer	Archaic, 8,500 BC-1,000 BC; Paleoindian, 10,000 BC-8,500 BC; Prehistoric lacking pottery	Archaeological Site	NE	G	P
PA00578 Blue Plate Quarry	Twentieth century American, 1900-present; Archaic, 8,500 BC-1,000 BC; Prehistoric lacking pottery	Archaeological Site	NE	Not recently located	P
PA00579 Chunk-O-Chert	Prehistoric lacking pottery	Archaeological Site	NE	Not recently located	P
PA00580 Dover	Prehistoric lacking pottery	Archaeological Site	NE	F	P
PA00581 Canal Mouth	Twentieth century American, 1900-present; Prehistoric lacking pottery	Archaeological Site	NE	G	P
PA00582 Mystery	Twentieth century American, 1900-present; Prehistoric	Archaeological Site	NE	P	P
PA00583 Mini	Twentieth century American, 1900-present; Prehistoric	Archaeological Site	NE	Not recently located	P
PA00599 Hammock Lighter	Unspecified cultural period	Archaeological Site	NE	F	P
PA00600 Big Pitt Hammock Lighter Bayou	Unspecified cultural period	Archaeological Site	NE	G	P

Table 4: Cultural Sites Listed in the Florida Master Site File

Site Name and FMSF #	Culture/Period	Description	Significance	Condition	Treatment
PA00601 Cactus Hammock	Unspecified cultural period	Archaeological Site	NE	G	P
PA00602 Donut Hammock Britches Creek	Unspecified cultural period	Archaeological Site	NE	G	P
PA00603 Ring Hammock Lighter Bayou	Unspecified cultural period	Archaeological Site	NE	F	P
PA00604 Spider Hammock Long Grassy Creek	Unspecified cultural period	Archaeological Site	NE	G	P
PA00605 Patch Hammock Long Grassy Creek	Unspecified cultural period	Archaeological Site	NE	G	P
PA00606 Pigeon Hammock Long Grassy Creek	Unspecified cultural period	Archaeological Site	NE	Not recently located	P
PA00607 Pietryzkowski Hammock Long Grassy Creek	Unspecified cultural period	Archaeological Site	NE	G	P
PA00608 Knee Deep Hammock Long Grassy Creek	Unspecified cultural period	Archaeological Site	NE	G	P
PA02119 Burts Pier	Unspecified cultural period	Archaeological Site	NE	P	P

Significance:

- NRL National Register listed
- NR National Register eligible
- LS Locally significant
- NE Not evaluated
- NS Not significant

Condition:

- G Good
- F Fair
- P Poor

Recommended Treatment:

- RS Restoration
- RH Rehabilitation
- ST Stabilization
- P Preservation
- R Removal

RESOURCE MANAGEMENT PROGRAM

Management Goals, Objectives and Actions

Measurable objectives and actions have been identified for each of DRP’s management goals for Werner-Boyce Salt Springs State Park. Please refer to the Implementation Schedule and Cost Estimates in the Implementation Component of this plan for a consolidated spreadsheet of the recommended actions, measures of progress, target year for completion and estimated costs to fulfill the management goals and objectives of this park.

While DRP utilizes the ten-year management plan to serve as the basic statement of policy and future direction for each park, a number of annual work plans provide more specific guidance for DRP staff to accomplish many of the resource management goals and objectives of the park. Where such detailed planning is appropriate to the character and scale of the park’s natural resources, annual work plans are developed for prescribed fire management, exotic plant management and imperiled species management. Annual or longer-term work plans are developed for natural community restoration and hydrological restoration. The work plans provide DRP with crucial flexibility in its efforts to generate and implement adaptive resource management practices in the state park system.

The work plans are reviewed and updated annually. Through this process, DRP’s resource management strategies are systematically evaluated to determine their effectiveness. The process and the information collected is used to refine techniques,

methodologies and strategies, and ensures that each park's prescribed management actions are monitored and reported as required by Chapters 253.034 and 259.037, Florida Statutes.

The goals, objectives and actions identified in this management plan will serve as the basis for developing annual work plans for the park. The ten-year management plan is based on conditions that exist at the time the plan is developed, and the annual work plans provide the flexibility needed to adapt to future conditions as they change during the ten-year management planning cycle. As the park's annual work plans are implemented through the ten-year cycle, it may become necessary to adjust the management plan's priority schedules and cost estimates to reflect these changing conditions.

Natural Resource Management

Hydrological Management

Goal: Protect water quality and quantity in the park, restore hydrology to the extent feasible and maintain the restored condition.

The natural hydrology of most state parks has been impaired prior to acquisition to one degree or another. Florida's native habitats are precisely adapted to natural drainage patterns and seasonal water level fluctuations, and variations in these factors frequently determine the types of natural communities that occur on a particular site. Even minor changes to natural hydrology can result in the loss of plant and animal species from a landscape. Restoring state park lands to original natural conditions often depends on returning natural hydrological processes and conditions to the park. This is done primarily by filling or plugging ditches, removing obstructions to surface water "sheet flow," installing culverts or low-water crossings on roads, and installing water control structures to manage water levels.

Objective: Conduct/obtain an assessment of the park's hydrological restoration needs.

A stormwater assessment for the park should be a top priority. The amount of hydrological restoration needed, and the proportion feasible, is unknown until an assessment is made.

There are several large stormwater drainage canals in the southern portion of the park, which drain large areas of roads, commercial developments and housing developments, that dump directly into the park. Several developments on the park's eastern boundary were completed prior to current on-site stormwater collection and treatment regulations. During heavy rain events, stormwater drainage from these developments as well as roads, such as Scenic Drive, typically flows directly into the park or into small stormwater and mosquito ditches that terminate in the park. An assessment of the impacts of the water volume, velocity and quality from these ditches is needed. Following the assessment, a determination should be made regarding whether any

control measures can be implemented to divert stormwater away from the park. Measures should be conducted in cooperation with relevant regulatory agencies, including DEP, SWFWMD and the City of Port Richey.

The park and district participated previously in an interagency working group to address water quality issues in and around the park. Many of the water quantity and quality, concerns for the park arise from sources outside the park, interagency communication and cooperation will be needed to assess, address and fund needed stormwater improvements.

The water quality results from DEP Springs Coast Basin stations at the Energy and Marine Center and Brasher Park should be monitored by park staff. Both of these monitoring stations currently list the water quality as imperiled due to the presence of high fecal coliform counts. While both sites are not within the park boundary, the water quality of the park may be affected due to daily tidal in-flow. Park staff should work with DEP staff to access water quality data for these sites as it becomes available. It will be important to be aware of any water quality concerns that may affect public health.

Objective: Plan restoration of natural hydrological conditions and functions following hydrologic assessment, and implement restoration as appropriate.

A large ditch enters the park as a drainage canal just south of the newly constructed entrance road. The ditch flows under the new road, through and around the hydric hammock to the north and turns west, continues through the mesic flatwoods and empties directly into Cauldron Spring. Following a proper assessment, park staff should coordinate with local agencies and municipalities to redirect this water flow away from the spring and attempt to capture and store the water before it enters the park. The appropriate solution and associated costs to divert stormwater away from Cauldron Spring to improve water quality cannot be determined until a stormwater assessment is completed.

While some recent water quality data has been collected for Salt Spring, almost no flow data has been recorded. There are no records of water quality or flow data for Cauldron Spring. Baseline flow and water quality data for both Salt and Cauldron springs should be collected and regularly monitored. Park staff should work with volunteer divers, SWFWMD and DEP to implement the necessary monitoring.

Objective: Restore natural hydrological function to salt marsh and mesic flatwoods natural communities to the extent possible by filling mosquito ditches at the north end of the park.

The hydrology of the park has been altered significantly by the installation of over 27 miles of mosquito ditches, the majority of which are in the central and northern portion of the park. The installation of the ditches permanently altered the sheet flow of surface water, the movement of sub-surface seepage and the hydrology of numerous individual

depression marshes, estuarine tidal pools and flatwoods lakes. An assessment of these ditches is needed to determine which ones can be restored. Coordination with local municipalities, including the Pasco County Mosquito Control District will be required to pursue any mosquito ditch restoration. A determination of potential listed species impacts, influences to the estuarine community and equipment access concerns must also be addressed prior to any implementation of mosquito ditch restoration.

Natural Communities Management

Goal: Restore and maintain the natural communities/habitats of the park.

As discussed above, DRP practices natural systems management. In most cases, this entails returning fire to its natural role in fire-dependent natural communities. Other methods to implement this goal include large-scale restoration projects as well as smaller scale natural communities' improvements. Following are the natural community management objectives and actions recommended for the state park.

Prescribed Fire Management: Prescribed fire is used to mimic natural lightning-set fires, which are one of the primary natural forces that shaped Florida’s ecosystem. Prescribed burning increases the abundance and health of many wildlife species. A large number of Florida’s imperiled species of plants and animals are dependent on periodic fire for their continued existence. Fire-dependent natural communities gradually accumulate flammable vegetation; therefore, prescribed fire reduces wildfire hazards by reducing these wild land fuels.

All prescribed burns in the Florida state park system are conducted with authorization from FDACS, Florida Forest Service (FFS). Wildfire suppression activities in the park are coordinated with FFS.

Objective: Within ten years, have 557 acres of the park maintained within the optimum fire return interval.

Table 5 contains a list of all fire-dependent natural communities found within the park, their associated acreage and optimal fire return interval, and the annual average target for acres to be burned.

Table 5: Prescribed Fire Management		
Natural Community	Acres	Optimal Fire Return Interval (Years)
Mesic Flatwoods	527.1	2-4
Scrubby Flatwoods	19.21	4-6
Depression Marsh	11.3	2-4
Annual Target Acreage	138-274	

The park is partitioned into burn zones, and burn prescriptions are implemented on the prescribed burn cycle for each zone. The park's burn plan is updated annually because fire management is a dynamic process. To provide adaptive responses to changing conditions, fire management requires careful planning based on annual and very specific burn objectives. Each annual burn plan is developed to support and implement the broader objectives and actions outlined in this ten-year management plan.

The prescribed burn program at the park was implemented in 2002. By 2008, all existing burn zones had been burned at least once, but many twice or more. In 2010, the burn zones were reconfigured and incorporated into larger management zones encompassing all the acreage of the park, including non-pyric natural communities. Currently no management zone consists entirely of fire-adapted natural community types due to the mosaic of natural communities at the park.

There are three fire-adapted natural community types designated at the park, mesic flatwoods, scrubby flatwoods and depression marsh. The mesic flatwoods is by far the largest fire-adapted community in the park at 527.1 acres. This community is contiguous in the southern end of the park. Farther north, the mesic flatwoods exist mainly as a narrow band between development on the park's eastern boundary or the hydric hammock and the extensive salt marsh community. The western edge of this narrow band appears as "fingers" with some disjunct patches of flatwoods reaching into the salt marsh.

The target fire return interval for the mesic flatwoods is 2-4 years. To remain current, 138-274 acres of mesic flatwoods should be burned each fiscal year. A number of species depend on the mesic flatwoods community. Gopher tortoises, especially hatchlings and juveniles depend on the diverse herbaceous component maintained by frequent fire. The growth response of grasses and forbs following prescribed fire provide an ideal food source of succulent, low growing vegetation. Imperiled plants such as pine lily and Tampa vervain, depend on fire to reduce the competition of larger perennial species as well as the nutrient cycling that result from regular burning.

The depression marshes at the park are interspersed in the mesic flatwoods community and will be burned as often as the mesic flatwoods community that surrounds them. Fire is critical to depression marshes to reduce the build-up of thatch and prevent colonization by woody and undesirable species like cattails. A number of wading and songbirds, as well as amphibians and insects, depend on depression marshes for seasonal feeding, resting and breeding.

The scrubby flatwoods natural community type is present as disjunct patches along Scenic Drive and in the southern portion of the park, south of the Westport Subdivision. The target fire return interval for the scrubby flatwoods is 4-6 years. To remain current, 3.2-4.8 acres of scrubby flatwoods should be burned each fiscal year. Fire will be

allowed to creep into the scrubby flatwoods each time the adjacent mesic flatwoods is burned, maintaining the ecotone between the communities and allowing fire to advance naturally into the scrubby flatwoods when the conditions are most appropriate. Gopher tortoises are also present in the scrubby flatwoods as well as the imperiled garberia shrub. In the presence of too much shade, garberia will not flower well, if at all, severely hampering reproduction. Regular, intense burns are needed to reduce the structure and density of xeric oaks and prevent succession to xeric hammock.

At present, prescribed burning at the park faces several challenges. One major challenge, especially in the northern part of the park, is access. There is no means for movement of equipment and personnel very far inside the park due to mosquito ditches, salt marsh and intervening peninsulas of residential development. Burn equipment must leave the park and re-enter at other locations to access adjacent areas within the park. The density of private and commercial development on the park's eastern boundary requires specific wind conditions for prescribed burning. To protect human health and property, a great deal of public education and outreach is required for the prescribed burn program at the park.

No firelines should be placed in the hydric hammock or salt marsh communities. Fire should be allowed to creep into these communities and extinguish naturally. The movement of surface sheet flow should be considered prior to new fireline installation to prevent further channelization of flow and increased erosion potential. Cogon grass is present in a number of fireline roads. This invasive weed is readily spread by mowing and fireline maintenance equipment and should be treated aggressively before further fireline preparation.

In order to track fire management activities, DRP maintains a statewide burn database. The database allows staff to track various aspects of each park's fire management program including individual burn zone histories and fire return intervals, staff training/experience, backlog, if burn objectives have been met, etc. The database is also used for annual burn planning, which allows DRP to document fire management goals and objectives on an annual basis. Each quarter the database is updated and reports are produced that track progress towards meeting annual burn objectives.

Natural Communities Restoration: In some cases, the reintroduction and maintenance of natural processes is not enough to reach the natural community desired future conditions in the park, and active restoration programs are required. Restoration of altered natural communities to healthy, fully functioning natural landscapes often requires substantial efforts that include mechanical treatment of vegetation or soils and reintroduction or augmentation of native plants and animals. For the purposes of this management plan, restoration is defined as the process of assisting the recovery and natural functioning of degraded natural communities to desired future condition,

including the re-establishment of biodiversity, ecological processes, vegetation structure and physical characters.

Examples that would qualify as natural communities' restoration requiring annual restoration plans include large mitigation projects, large-scale hardwood removal and timbering activities, roller-chopping and other large-scale vegetative modifications. The key concept is that restoration projects will go beyond management activities routinely done as standard operating procedures, such as routine mowing, the reintroduction of fire as a natural process, spot treatments of exotic plants, small-scale vegetation management and so forth.

Following are the natural community/habitat restoration and maintenance actions recommended to create the desired future conditions in the scrubby flatwoods community.

Natural communities restoration is needed in the salt marsh and mesic flatwoods communities. However, due to the substantial hydrological restoration that is needed in these communities, the extent and intensity of natural community restoration activities cannot be determined at this time, but should be addressed in the next update of the management plan.

Natural Communities Improvement: Improvements are similar to restoration but on a smaller, less intense scale. This typically includes small-scale vegetative management activities or minor habitat manipulation. Following are the natural community/habitat improvement actions recommended at the park.

Objective: Conduct natural community/habitat improvement activities on 0.5 acres of scrubby flatwoods community.

A portion of the scrubby flatwoods adjacent to the Scenic Drive Trail is overgrown with large xeric oaks and may require some mechanical treatment to return to natural condition. The large oaks, primarily sand live oak, are large enough that they may not be killed by repeated prescribed burning alone. Proximity of the site to urban areas means that less intense fire will probably be prescribed for safety reasons. The site has been burned in the past and the oaks have persisted. Some additional thinning using chainsaws may be required to reduce the oaks to optimal size. No replanting is proposed for this area.

Natural Communities Maintenance: Maintenance is considered any activity that helps to maintain or monitor the natural communities currently in desired condition. Specific actions relating to prescribed burning and exotic species control will be discussed in the corresponding sections.

Objective: Continue annual monitoring of the marine and estuarine seagrass beds in the park.

Annual monitoring of the seagrass beds at the park was implemented in 2006. The goal of the monitoring is to collect baseline data on the species, abundance and condition of the seagrasses in the park. Monitoring is done at specific locations each year in an attempt to establish trend data. This monitoring is an important tool to provide for regular assessment of the seagrass as well as trend data in advance of any changes that may take place at the park, such as hydrologic changes due to mosquito ditch restoration, natural disasters, such as oil spills or effects from climate change. Data are compiled into an annual report that is available at the park or district office.

The impact of prop scars on seagrass beds is well understood. While prop scars are known to occur at the park, there is no systematic method for documenting them to quantify their extent. Annual mapping and documenting prop scars needs to be developed and implemented.

Imperiled Species Management

Goal: Maintain, improve or restore imperiled species populations and habitats in the park.

DRP strives to maintain healthy populations of imperiled plant and animal species primarily by implementing effective management of natural systems. Single species management is appropriate in state parks when the maintenance, recovery or restoration of a species or population is complicated due to constraints associated with long-term restoration efforts, unnaturally high mortality or insufficient habitat. Single species management should be compatible with the maintenance and restoration of natural processes, and should not imperil other native species or seriously compromise park values.

In the preparation of this management plan, DRP staff consulted with staff of FFWCC's Imperiled Species Management or that agency's regional biologist and other appropriate federal, state and local agencies for assistance in developing imperiled animal species management objectives and actions. Likewise, for imperiled plant species, DRP staff consulted with FDACS. Data collected by the USFWS, FFWCC, FDACS and FNAI as part of their ongoing research and monitoring programs will be reviewed by park staff periodically to inform management of decisions that may have an impact on imperiled species at the park.

Ongoing inventory and monitoring of imperiled species in the state park system is necessary to meet DRP's mission. Long-term monitoring is also essential to ensure the effectiveness of resource management programs. Monitoring efforts must be prioritized so that the data collected provides information that can be used to improve or confirm the effectiveness of management actions on conservation priorities. Monitoring

intensity must at least be at a level that provides the minimum data needed to make informed decisions to meet conservation goals. Not all imperiled species require intensive monitoring efforts on a regular interval. Priority must be given to those species that can provide valuable data to guide adaptive management practices. Those species selected for specific management action and those that will provide management guidance through regular monitoring are addressed in the objectives below.

Objective: Update baseline imperiled species occurrence inventory lists for plants and animals, as needed.

A comprehensive vascular plant survey has been done and voucher specimens collected for deposition in both the District 4 Herbarium and the University of South Florida Herbarium. Any additional observations of imperiled plant species will be documented, vouchered and management measures implemented as necessary.

The imperiled animal species inventory is completed through annual winter bird counts, gopher tortoise surveys and incidental observations. More comprehensive multi-taxa animal surveys are needed. Any imperiled species occurrences will be documented, vouchered as needed and management measures implemented as necessary.

Objective: Monitor and document five selected imperiled animal species in the park.

Gopher tortoise surveys have been completed for three management zones in the park. Any zones that still require surveying will be done after prescribed burns following established protocols.

Three estuarine salt marsh species require annual monitoring, Scott's seaside sparrow, Marian's marsh wren and black rail. These species depend on the black needle rush stands of the salt marsh community for food, cover and nesting. Annual monitoring during the late spring, early summer nesting season should be done to document approximate territorial locations. The secretive nature of the birds and remoteness of the habitat will typically preclude regular counts of birds, but estimates will be made whenever possible. GPS locations of territories should be taken whenever possible. Any signs of disturbance, such as hog rooting, mangrove invasion into the marsh, invasive plant presence or airboat use off of sanctioned trails, should be noted and corrective action taken.

Airboats have been used in the park for decades. There are several miles of established airboat trails in the salt marsh community. A number of locations of Scott's seaside sparrows, Marian's marsh wrens and black rails have been documented in close proximity to these trails. The airboat trails should be monitored regularly to ensure users remain only on the trails, and a coordinated effort should be made between park

staff, FWC biologists, and the airboat user group to identify duplicative trails that could be potentially restored.

Wilson's plover have been documented nesting on the open salt barrens scattered in the salt marsh. Annual monitoring of this species should be done during the late spring, early-summer nesting season. During this time of year, visitor access to the salt flats should be restricted. Territorial nesting locations should be GPS mapped during the monitoring event, the number of birds estimated, and any signs of disturbance such as human presence or hog damage noted. Corrective action will be taken as necessary for any noted disturbances. All collected data should be submitted to FFWCC's statewide beach-nesting bird database.

Objective: Coordinate with FWC and the airboat user group to assess effects of airboat use and identify appropriate corrective actions.

Even though airboat use has occurred for decades, the impacts of airboating on the park's natural resources are a source of potential disturbance to the imperiled bird species. Additional coordination and research efforts are needed to further quantify the effects of airboat use on the rare marsh birds dependent on this community. Afterwards, a determination should be made regarding what corrective actions such as alternative trail placement, trail closures, buffer zones or seasonal use reductions are necessary to protect imperiled bird species. Unauthorized airboat areas should be barricaded with signage.

Objective: Post proper signage visible to all boaters entering the state park.

As the park has no boat ramp for public use, all boats operating in the park enter from outside the park. Currently, there is no signage for boaters that indicates the park boundary or provides directions for appropriate use or resource protection. The need for appropriate signage for users of all boat types is critical to educate users and protect the resources of the park.

Historical aerials indicate the presence of airboat trails in the marsh dating back to the 1980s. Many of the trails present then are not present today, having been replaced by the current trails that first appeared in aerial photographs in 1999. The airboat trails in the park are not marked with any signage designating them as such or listing any restrictions on use that would serve to protect the habitat of imperiled bird species in the salt marsh. Park management should coordinate with FFWCC staff to produce signage with appropriate language restricting airboat use to established trails and prohibiting any airboat operation in intact black needle rush marsh. The signs should be placed appropriately at each sanctioned trail.

Objective: Monitor and document two selected imperiled plant species in the park.

There is currently one population of pine lily documented in the park. That population should be monitored annually to ensure vigor and persistence. The pine lily is

dependent on regular prescribed burning and maintenance of hydrology for persistence. Continued monitoring will serve as a good indicator of fire and hydrological management. Any new locations should be GPS mapped and monitored annually.

Tampa vervain is known to be present in the park and any documented locations of the plants should be added to the schedule of annual monitoring. These plants appear to thrive following burning; therefore, 6-10 months following prescribed burns will be the best time to monitor for the plants, especially in the hydric hammock/mesic flatwoods ectonal communities. Their presence should serve as an indicator of proper prescribed fire return intervals.

Annual monitoring should consist of counting all plants present, noting phenology, taking additional GPS locations as necessary and assessing the habitat conditions. Habitat assessment should include status of prescribed burning, any disturbances noted, environmental conditions, such as rainfall to date, and associated plant species. All collected data should be submitted to FNAI for inclusion in the statewide tracking database.

Objective: Continue to monitor the four Southern bald eagle nests in the park.

While the two northernmost nests in the park are in remote areas, the third nest is close to the West Port community to the south while the southernmost nest is quite close to both a park road and the Boy Scout Trail. Annual monitoring of eagle use of the nests should be done. All requirements for restrictions on resource management activities and recreational use within the nest buffer zones as established by the Bald Eagle Management Plan (FFWCC 2008) will be followed. There have been recent sightings of eagle harassment during the nesting season within the surrounding community. A need for additional law enforcement during this period of the year may be necessary.

Exotic Species Management

Goal: Remove exotic and invasive plants and animals from the park and conduct needed maintenance control.

DRP actively removes invasive exotic species from state parks, with priority being given to those causing ecological damage. Removal techniques may include mechanical treatment, herbicides or biocontrol agents.

Objective: Annually treat 100 acres of exotic plant species in the park.

Invasive exotic plants continue to be a large resource management need at the park. Persistent species such as cogon grass, Brazilian pepper and leadtree are widespread and often occur in remote areas of the park. The warm, wet conditions of the growing season make for ideal conditions for establishment and re-growth of these and other invasive plants.

The park establishes annual invasive plant removal goals and updates an annual work plan to prioritize areas requiring treatment, both initial and follow-up. All known infestations have been documented and included in the statewide Invasive Exotic Plant Database for purposes of quantifiable long-term tracking. These infestations are updated at least every two years depending on treatment status.

At this time, with limited funding and staff resources, the invasive exotic plant removal needs of the park cannot be met with in-house staff and volunteer efforts. Outside funding must be secured in the form of grants for contractors, OPS positions, individually placed Americorps positions and other supplemental resources in order to meet the goals of the park's annual work plan. Additional funding should be sought annually to ensure that every completed project receives adequate follow-up to ensure long-term invasive plant control success.

Objective: Continue to implement control measures on two nuisance and exotic animal species in the park.

While nuisance and exotic animal species are currently controlled in the park, regular removal of those that appear is needed to keep them from becoming a larger problem. Feral hogs have been removed, but occasionally hogs are observed and require removal by park staff. There is no real conduit for immigration of hogs into the park, but park staff has observed signs of illegal access and purposeful release of a hog into the park.

Feral cats continue to be found near urban interface, such as the shop and Scenic Drive Trailhead. Cats can be extremely detrimental to songbirds, small mammals and reptiles and will be trapped and removed when they are observed.

Special Management Considerations

Timber Management Analysis

Chapters 253 and 259, Florida Statutes, require an assessment of the feasibility of managing timber in land management plans for parcels greater than 1,000 acres if the lead agency determines that timber management is not in conflict with the primary management objectives of the land. The feasibility of harvesting timber at this park during the period covered by this plan was considered in context of DRP's statutory responsibilities and an analysis of the park's resource needs and values. The long-term management goal for forest communities in the state park system is to maintain or re-establish old-growth characteristics to the degree practicable, with the exception of those communities specifically managed as early successional.

During the development of this plan, an analysis was made regarding the feasibility of timber management activities in the park. It was determined that the primary management objectives of the unit could be met without conducting timber management activities for this management plan cycle.

Additional Considerations

The park boundary extends into the Gulf of Mexico to include approximately 790 acres of sovereign submerged land. In addition, the Trustees have granted management authority of certain sovereign submerged lands to DRP under Management Agreement MA 68-086 (as amended January 19, 1988). Management of Werner-Boyce Salt Springs State park includes certain management activities within the buffer zone of sovereign submerged land along the shoreline, beginning at the mean high water or ordinary high water line, or from the edge of emergent vegetation and extending waterward for 400 feet. The park manages a 400-foot sovereign submerged land buffer along the west side of the park extending into the Gulf of Mexico. Natural communities in the submerged areas, marine seagrass bed and marine unconsolidated substrate, do not require any intense management actions to maintain. Management of submerged areas will be concurrent with these community types as described in the Natural Communities section of this plan.

Arthropod Control Plan

DRP lands are designated as “environmentally sensitive and biologically highly productive” in accordance with Ch. 388 and Ch. 388.4111. If a local mosquito control district proposes a treatment plan, the Division responds within the allotted time and reaches consensus with the mosquito control district. By policy of DEP since 1987, no aerial adulticiding is allowed, but larviciding and ground adulticiding (truck spraying in public use areas) is typically allowed. DRP does not authorize new physical alterations of marshes through ditching or water control structures. Mosquito control plans temporarily may be set aside under declared threats to public or animal health or during a Governor’s Emergency Proclamation.

An Arthropod Management Plan has been developed by the Pasco County Mosquito Control District in cooperation with FDACS and the park. The plan has been implemented and is available at the park.

Sea Level Rise

Potential sea level rise resulting from global climate change is now under study and will be addressed by Florida’s residents and governments in the future. DRP will stay current on existing research and predictive models, in coordination with other DEP programs and federal, state and local agencies. DRP will continue to observe and document the changes that occur to the park’s shorelines, natural features, imperiled species populations, and cultural resources. This ongoing data collection and analysis will inform the Division’s adaptive management response to future conditions, including the effects of sea level rise, as they develop.

Cultural Resource Management

Cultural Resource Management

Cultural resources are individually unique, and collectively, very challenging for the public land manager whose goal is to preserve and protect them in perpetuity. DRP is implementing the following goals, objectives and actions, as funding becomes available, to preserve the cultural resources found in Werner-Boyce Salt Springs State Park.

Goal: Protect, preserve and maintain the cultural resources of the park.

The management of cultural resources is often complicated because these resources are irreplaceable and extremely vulnerable to disturbances. The advice of historical and archaeological experts is required in this effort. All activities related to land clearing, ground disturbing activities, major repairs or additions to historic structures listed or eligible for listing in the National Register of Historic Places and collections care must be submitted to the DHR for review and comment prior to undertaking the proposed project. Recommendations may include, but are not limited to concurrence with the project as submitted, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effect. In addition, any demolition or substantial alteration to any historic structure or resource must be submitted to DHR for consultation and DRP must demonstrate that there is no feasible alternative to removal and must provide a strategy for documentation or salvage of the resource. Florida law further requires that DRP consider the reuse of historic buildings in the park in lieu of new construction and must undertake a cost comparison of new development versus rehabilitation of a building before electing to construct a new or replacement building. This comparison must be accomplished with the assistance of DHR.

Objective: Assess and evaluate 29 of 29 recorded cultural resources in the park.

All documented cultural sites within the park have been evaluated in 2011. They should be visited and evaluated every one to two years. Ten sites require further evaluation to determine whether they are actually cultural sites. A schedule should be developed to ensure all sites are visited regularly to evaluate their current condition. The evaluation should include an assessment of any potential threats to each site, such as erosion, signs of hog rooting, signs of damage from looting or pedestrian traffic, damage from firebreak maintenance, or overgrowth by dense invasive vegetation. Evaluation should also include a comparison to the condition at the time of the previous evaluation through objective techniques, such as photo points. Any need for corrective action determined by these evaluations should be prioritized and implemented to mitigate for any negative impacts as determined by the treatment designation specified for each site in Table 4.

Objective: Compile reliable documentation for all recorded historic and archaeological resources.

All the FMSF records from October 2000 (PA00599-PA00608) indicate the sites require further evaluation early in the plan cycle to determine if they are culturally significant. The records were submitted based on the probability of cultural significance due to factors observed by the reporter such as signs of looting, large hammocks and shell deposits. These sites need to be further evaluated to determine if they are culturally significant.

While a Level I archaeological survey was done in 1997, a predictive model for predicting high, medium, and low probability locations for additional archaeological sites is needed. The original survey was not able to cover the entire property and parcels have since been added to the park that have not been surveyed. Once completed, additional surveys for culturally significant sites should be done following the site probability priorities determined by the model.

The Salt Spring area has been reported to have historical significance. Little information has been compiled by the park to document or corroborate the events and history of the site in and near the park that have occurred since the 1800s. Effort should be made to compile this history through research, outreach to the local historical society and oral history interviews of knowledgeable local residents.

A Scope of Collections Statement has not been developed for the park and is needed. The significance of the historical objects in the park's collection should be determined.

Objective: Bring three of 29 recorded cultural resources into good condition.

Currently only three cultural resource sites are considered to be in poor condition, Salt Spring (PA00115), Mystery (PA00582), and Burts Pier (PA02119). Consultation with DHR staff is needed to determine the need and feasibility of preserving these sites. Following consultation, corrective action to bring the sites into good condition to the extent possible will be implemented. The cultural sites currently in good condition should continue to be preserved by protecting them from impacts such as erosion, looting and disturbance from resource management activities.

Resource Management Schedule

A priority schedule for conducting all management activities that is based on the purposes for which these lands were acquired, to enhance the resource values, is located in the Implementation Component of this management plan.

Land Management Review

Section 259.036, Florida Statutes, established land management review teams to determine whether conservation, preservation and recreation lands titled in the name of the Board of Trustees are being managed for the purposes for which they were acquired

and in accordance with their approved land management plans. DRP considered recommendations of the land management review team and updated this plan accordingly.

Werner-Boyce Salt Springs State Park was subject to a land management review on September 16, 2010 (see Addendum 8). The review team made the following determinations:

1. The land is being managed for the purpose for which it was acquired.
2. The actual management practices, including public access, complied with the management plan for this site.

LAND USE COMPONENT

INTRODUCTION

Land use planning and park development decisions for the state park system are based on the dual responsibilities of the Florida Department of Environmental Protection (DEP), Division of Recreation and Parks (DRP). These responsibilities are to preserve representative examples of original natural Florida and its cultural resources, and to provide outdoor recreation opportunities for Florida's citizens and visitors.

The general planning and design process begins with an analysis of the natural and cultural resources of the unit, and then proceeds through the creation of a conceptual land use plan to guide the location and extent of future park development. Input to the plan is provided by experts in environmental sciences, cultural resources, park operation and management, and through public workshops, and user groups. With this approach, DRP's objective is to provide quality development for resource-based recreation with a high level of sensitivity to the natural and cultural resources at each park throughout the state.

This component of the unit plan includes a brief inventory of the external conditions and the recreational potential of the unit. Existing uses, facilities, special conditions on use and specific areas within the park that will be given special protection, are identified. The land use component then summarizes the current conceptual land use plan for the park, identifying the existing or proposed activities suited to the resource base of the park. Any new facilities needed to support the proposed activities are described and located in general terms.

EXTERNAL CONDITIONS

An assessment of the conditions that exist beyond the boundaries of the unit can identify any special development problems or opportunities that exist because of the unit's unique setting or environment. This also provides an opportunity to deal systematically with various planning issues such as location, regional demographics, adjacent land uses and park interaction with other facilities.

Werner-Boyce Salt Springs State Park is located on the west coast of Pasco County, 36 miles northwest of Tampa. Part of the park is within the incorporated City of Port Richey. Several large population centers are located within a few miles of the park, including Tampa, St. Petersburg and Clearwater. An estimated 3.1 million people reside within 50 miles of the park boundary (TeleAtlas 2010).

Residents of Pasco County are likely to be older white individuals with low to moderate income. An overwhelming majority, more than 80 percent, of county residents identify as non-Hispanic white. Minority groups make up the remaining 20 percent, with Hispanic or Latino residents comprising the largest minority at 11 percent. In 2009,

more than half of county residents were over the age of 40, and nearly one-third over the age of 60 (US Census Bureau 2010). In 2009, the county workforce represented just over one-fourth of the population, while the per capita personal income was \$29,236, about three-fourths the statewide average (US BEA 2011). This data indicates that offering affordable day use activities that are accessible to a wide range of users would benefit a large segment of local residents.

The park is located in the Central West Vacation Region, which includes Citrus, Hernando, Hillsborough, Pasco and Pinellas Counties (Visit Florida! 2010). According to the 2009 Florida Visitor Survey, this is the third most popular region in the state, attracting 12 percent of the total travelers to and within Florida. Of the estimated 9.7 million people who visited the region in 2009, more than three-fourths traveled for leisure. The survey identified visiting the waterfront, shopping, and sightseeing as the top activities for visitors to the region. It also found winter (December to February) to be the most popular travel season with one-third of total visitation occurring during this time, followed by summer and spring (Visit Florida! 2010). More than half of all visitors traveled by air and almost as many paid for accommodations. The median length of stay was three nights with average expenditures of \$118 per person per day. Two thirds traveled as one or two adults. Half of all visitors reported household income of \$100,000 or greater, and the median visitor age was 45 (Visit Florida! 2010).

There are many resource-based recreational areas within ten miles of the park, including Weekiwatchee Preserve, the Jay B. Starkey Wilderness Park, Anclote Key Preserve State Park and Honeymoon Island State Park. These lands support an array of resource-based outdoor activities. Weekiwatchee Preserve, a conservation and recreation property managed by SWFWMD, contains notable hammock communities and Florida black bear habitat. It provides opportunities for hiking, biking and water activities. The Jay B. Starkey Wilderness Park offers hiking and equestrian trails and a bike path for recreation and wildlife observation. Anclote Key Preserve State Park and Honeymoon Island State Park are popular destinations within the Florida state park system, offering saltwater beaches for swimming, surfing, fishing, boating, paddling, picnicking, hiking, biking, primitive camping and nature study. DRP also manages multiple trails in Pasco County. The Suncoast Trail, a 42-mile paved regional connector that runs parallel to the Suncoast Parkway, provides opportunities for biking, walking and skating.

Paddlers can access the state park from the Florida Circumnavigational Saltwater Paddling Trail. The paddling trail begins at Big Lagoon State Park near Pensacola, extends around the Florida peninsula and Keys, and ends at Fort Clinch State Park, near the Georgia coast. The trail is 1,500 miles long and divided into 26 segments. Segment eight of the paddling trail includes the park's gulf coast. Paddlers can stay overnight at the park's primitive camp, which is located on Hope Bayou. The Pithlachascotee River Trail, a five-mile urban paddling trail, is also located nearby.

Pasco County and the cities of Port Richey and New Port Richey maintain several local parks that offer opportunities for beach activities, fishing, boating and paddling, wildlife observation, picnicking, hiking, biking, horseback riding and camping, such as Wilmslow and Brasher parks to the south. A paved shared-use path that runs along Old Post Road connects the state park to a waterfront county park located one mile south at Miller's Bayou. Several boat ramps are located nearby, including one at Hudson Beach Park, just north of the Leisure Beach Community and one at Miller's Bayou Park.

Existing Use of Adjacent Lands

The park is adjacent to the U.S. Highway 19 mixed-use commercial corridor, which includes residential, commercial and industrial uses. Adjacent residential land uses to the south and east include low-density residential and mobile home parks. Medium- and high-density neighborhoods are located north and east of the park. Several RV parks are located off U.S. Highway 19, adjacent to the park. Commercial uses include the Gulf View Square Mall, assorted fast food and casual dining restaurants, and an array of retail stores and plazas. Nearby industrial uses include vehicle parts and equipment businesses, small-scale manufacturing, storage and warehousing. In addition, four landfills are located within two miles of the park. All four landfills occur southeast of the park boundary, and one is located within the Double Hammock watershed, which is shared by the park.

Several stilt-house structures are located adjacent to the park's western boundary on sovereignty submerged lands in the Gulf of Mexico. Pasco County has listed these 1950's vernacular framed structures in the Florida Master Site File. The stilt-houses, or fish camps, are wooden structures constructed on pilings approximately one mile offshore. Several of these privately owned structures operate as short-term rental units, managed by property management companies. In 1998, the Board of Trustees granted twenty-year non-renewable leases to the owners of the fish camps. The leases are scheduled to expire during the tenure of this unit management plan, approximately in the year 2018.

Planned Use of Adjacent Lands

Out of Florida's 67 counties, Pasco ranks twelfth and eleventh in total population and population density, respectively. More than 470,000 people lived in the county in 2009, accounting for approximately three percent of the population statewide (US Census Bureau 2010). Between 2000 and 2009, the county population grew by approximately 37 percent, more than twice the statewide rate of growth during the same period (US Census Bureau 2010). This rate is consistent with the average rate of growth projected for Pasco County from 2010 through 2030 (UFL BEBR 2010). If this rate of growth continues, the county population could potentially double by 2050.

Analysis of recent amendments to the Pasco County Comprehensive Plan shows trends toward mixed-use development and increased residential density, as well as a transition from agricultural to light industrial and commercial land uses. Much of the recent growth in the county has occurred in the form of larger mixed-use planned developments. The fastest developing areas occur in the county center and along the southern boundary, which is shared with Hillsborough County. Growth in Port Richey trends toward increasing industrial uses. Several properties southeast of the park boundary transitioned from mixed-use to industrial. As well, both Port Richey and New Port Richey have expanded their boundaries to include land area close to the park.

Pasco County has identified a potential north-south shared-use trail corridor along much of the eastern park boundary. DRP supports this potential shared-use trail under development by the County and will work with the County to determine the most appropriate location for the trail.

As developable land in western Pasco County is already limited, continued protection of the park from encroachment and other potential impacts of adjacent development will become increasingly important. In addition, demand for resource-based recreational activities at the park is sure to increase.

PROPERTY ANALYSIS

Effective planning requires a thorough understanding of the unit's natural and cultural resources. This section describes the resource characteristics and existing uses of the property. The unit's recreation resource elements are examined to identify the opportunities and constraints they present for recreational development. Past and present uses are assessed for their effects on the property, compatibility with the site, and relation to the unit's classification.

Recreation Resource Elements

This section assesses the unit's recreation resource elements, those physical qualities that, either singly or in certain combinations, supports the various resource-based recreation activities. Breaking down the property into such elements provides a means for measuring the property's capability to support individual recreation activities. This process also analyzes the existing spatial factors that either favor or limit the provision of each activity.

Land Area

The park's land area provides opportunities for hiking and wildlife observation. Picnicking and other activities are also well suited for these areas. Upland areas at the southeast main entrance and the northeast boundary lack an upland connection, leaving the southern and northern use areas isolated from one another. Many areas are seasonally wet and interspersed with fresh and saltwater wetlands; therefore, surface

and floor elevations may require construction above the natural grade. In addition, boardwalks may be needed to connect user areas and complete proposed trails.

Water Area

Extensive tidal creeks and the gulf provide significant resources for water activities. Canoeing and kayaking are popular uses of the tidal creeks. Special precautions should be taken to protect the park's most vulnerable communities, including the maritime hammocks and marine seagrass beds, while allowing recreational use of the waterways. The sensitivity and ecological value of these communities should be interpreted onsite for park visitors. Although launching of larger boats is not offered at the park, boating and airboating are both popular recreational activities off the park's coast and on its waterways. The cumulative effects of airboating on water resources and wetland communities are not known; therefore, efforts should be made to balance this activity with protection of natural resources. Saltwater fishing is also popular in the inland waters of the park.

Shoreline

The park features miles of shoreline that consists of saltwater marshes and tidal flats, interspersed with estuaries and hammocks. Approximately three miles of gulf shoreline is accessible only by watercraft. Shores of scattered inland creeks and springs are accessible from trails and boardwalks, providing opportunities for birding, wildlife observation, canoe and kayak launching, shoreline saltwater fishing, picnicking and hiking. However, public use potential is limited due to access issues and the sensitivity of these habitats.

Natural Scenery

The park provides spectacular opportunities for nature study, wildlife observation and interpretation. Nature trails, constructed boardwalks and overlooks, and the park's many waterways provide access for visitors to enjoy the park's natural scenery. The park's many miles of water trails provide significant opportunities for intimate wildlife viewing experiences with minimal impact to the natural resources. Certain areas of the park are unsuitable for extensive facilities development; however, access to these areas for wildlife study and viewing should be provided.

Significant Habitat

The pristine nature and abundance of the park's natural areas contribute substantially to the biological diversity of the region, which has experienced rapid development. Natural communities within the park provide valuable habitat for a host of imperiled species, including twenty-three imperiled bird species. These delicate communities provide opportunities to observe wildlife in their native habitat, which help foster understanding and appreciation of these organisms.

Natural Features

The park is located in an area of west central Florida known as the “Springs Coast” (SWFWMD 2010). The park features unique karst topography, prevalence of salt and freshwater springs and low-energy coastline that are characteristic of this region. These notable features provide opportunities to display and interpret Florida’s unique geologic and hydrologic systems for park visitors.

Archaeological and Historical Features

Twenty-nine cultural sites occur within the state park, ranging from the prehistoric period up to the 20th century. Many recorded sites are located in sensitive areas that are difficult to access and, therefore, may not be suitable for onsite interpretation. However, these sites can provide subject matter for interpretation at other areas, such as the proposed overlooks, along nature trails and in the day use areas. Salt Springs may provide the best location for onsite interpretation due to its proximity to proposed hiking trails and the main day use area.

Assessment of Use

All legal boundaries, significant natural features, structures, facilities, roads and trails existing in the unit are delineated on the base map (see Base Map). Specific uses made of the unit are briefly described in the following sections.

Past Uses

Historically, mining and camping occurred around Salt Springs, as evidenced by the park’s archaeological resources. Despite rapid development of the surrounding areas, most of the park property has remained natural. However, in the 1950s and 1960s, miles of mosquito ditches were constructed on the park property to facilitate drainage from the adjacent developed areas. A variety of recreational uses have also occurred on the park property prior to its acquisition. Salt Springs was a popular destination for swimming, as well as fishing, hunting, camping, paddling and boating. Airboating has been a popular activity on creeks and within the marshes and miles of airboat trails still exist in the park.

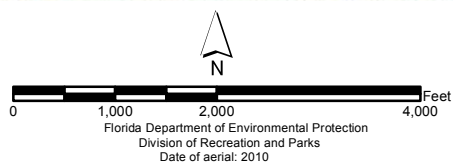
Future Land Use and Zoning

DRP works with local governments to establish designations that provide both consistency between comprehensive plans and zoning codes and permit typical state park uses and facilities necessary for the provision of resource-based recreation opportunities.

Five future land use (FLU) designations exist within the park boundary: “Coastal Land” (C/L), “Major Recreation/Open Space” (R/OS), “Retail/Office/Residential” (ROR), “Residential-6” (RES-6) and “Residential-9” (RES-9) (Pasco County BOCC 2006). Four of these allow for the development of residential units. C/L is developable to .025



WERNER-BOYCE SALT SPRINGS STATE PARK



BASE MAP

dwelling units per ground acre (du/ga), and RES-6 and RES-9 are developable to six and nine du/ga, respectively.

Permitted uses in the C/L designation are limited to residential and residential support related uses. Potential conflicts with typical state park development could occur within this FLU. The R/OS designation applies to major recreation areas and permanent open space, including parks and publically owned and operated facilities; therefore, no conflicts are anticipated within this FLU. RES-6 and RES-9 permitted uses include recreation facilities and “neighborhood-scale” public facilities (Pasco County BOCC 2006). Conflicts with these designations are not likely; however, the residential density provided for is not consistent with state park uses. ROR allows for development of two or more land uses, out of retail, office or residential, and up to 75 percent coverage per use. The comprehensive plan considers ROR as an “inactive” designation, meaning that properties possessing this designation may use it to manage growth and development; however, the county stopped granting this designation after adoption of the comprehensive plan in 2006 (Pasco County BOCC 2006). Since any ROR district requires a minimum of 25 percent retail or office land uses, this FLU designation may conflict with typical state park uses.

Three county zoning designations exist within the park boundary: “Agricultural” (AC), “General Commercial” (C-2) and “Master Planned Unit Development” (MPUD). The vast majority, approximately 96 percent, of the park is zoned AC. Permitted uses in an AC district include public parks and playgrounds, dwellings, non-commercial recreation areas including parks, and public buildings and facilities (Pasco County LDC 2010). MPUD districts permit a wide range of allowable uses, including recreational uses and facilities; however, land uses employed within this district are required to be specified for use by residents of the district (Pasco County BOCC 2010). Since only park personnel reside within the park, this zoning designation conflicts with development of public recreational facilities. Permitted uses for C-2 districts include many commercial uses, such as retail and service land uses. Public resource-based recreation is not a permitted or accessory use of this district; therefore, this zoning designation may conflict with development that is characteristic to state parks. Potential conflicts should be resolved with applicable zoning and permitting bodies prior to development of park facilities.

The southern park area, which occurs inside the City of Port Richey, is zoned general commercial (C-3), planned unit development (PUD) and multiple-family residential (R-3). According to the Port Richey LDC, public recreational or cultural facilities are permitted uses within R-3 zoning districts; however, they are not allowed in C-3 and PUD districts as permitted, accessory or special exception uses. Therefore, these zoning designations may conflict with state park land uses. This potential conflict should be resolved with applicable zoning and permitting bodies prior to developing park facilities. (Port Richey City Council 2008)

The park is located entirely within the Coastal High Hazard Area (CHHA). The Pasco County Comprehensive Plan establishes an open space requirement of up to 80 percent for land within the CHHA. Due to the limited area that is suitable for development, as well as the limited scope of development proposed in this plan, conflicts with the open space requirement are not anticipated. However, DRP staff should work with local officials to ensure compliance with open space requirements. Furthermore, facilities developed within the CHHA may be subject to minimum construction standards, which could include base floor elevation or wind-resistant material requirements. DRP staff should be aware of potential minimum standards for construction within the CHHA.

Current Recreational Use and Visitor Programs

The park offers opportunities for picnicking, hiking, paddling, wildlife observation, and nature study. Airboating and primitive youth group camping also occur within the park. At this time, there are no opportunities for visitors to launch boats within the park; however, visitors may launch from outside the park and enter the park from the Gulf.

Information from the 2009 Florida Visitor Survey suggests that visitors to the region are likely to be older adults traveling singly or in small groups (Visit Florida! 2010). Furthermore, it indicates that the predominance of water and water-related activities and proximity to other land uses, including shopping and lodging, may make the park an attractive destination for visitors to the region. In addition, these data indicate that overnight lodging, such as full-facility camping or cabins, could be a popular amenity as additional lands are acquired into the park.

According to DRP data, an average of 50,857 people visited the park in the last fiscal year (FY), generating approximately \$2.4 million for the local economy. DRP estimates that visitors from FY2010/2011 contributed an additional \$152,267 in sales tax revenue and 47 jobs to the local economy (FDEP DRP 2011).

Protected Zones

A protected zone is an area of high sensitivity or outstanding character from which most types of development are excluded as a protective measure. Generally, facilities requiring extensive land alteration or resulting in intensive resource use, such as parking lots, camping areas, shops or maintenance areas, are not permitted in protected zones. Facilities with minimal resource impacts, such as trails, interpretive signs and boardwalks are generally allowed. All decisions involving the use of protected zones are made on a case-by-case basis after careful site planning and analysis. At Werner-Boyce Salt Springs State Park, the wetland natural communities and bald eagle nest sites have been designated as protected zones as delineated on the Conceptual Land Use Plan.

Existing Facilities

Recreation Facilities

Several recreation facilities have been added since the previous plan update. A trailhead was added off Scenic Drive, which provides parking, a picnic shelter, hiking trail, interpretive kiosk and composting restroom. A second trailhead, known as the Black Rail trailhead, was added at the north end of the park off State Road 52. This trailhead includes an interpretive kiosk, hiking trail and unimproved parking area.

Construction of the park's main entrance and corresponding south day use area are underway. A paved entrance road off U.S. Highway 19 is complete and two visitor parking areas are in progress. These facilities will provide access to a small existing picnic area and shoreline canoe launch.

The park's Citizen Support Organization (CSO) has contributed a number of recreational facilities, including an interpretive center and primitive boat-in campsite. The interpretive trailer is located at the north end of Old Post Road. It includes a bathroom, office and observation deck, and it houses a number of the park's collections. The primitive campsite is located on Hope Bayou, approximately three-quarters of a mile south of Bayonet Point, and is accessible only by boat. The campsite includes a temporary shelter with two picnic tables and a fire ring.

A primitive group camping area is located in the southern part of the park, approximately between the main entrance and the shop compound. The camping area is accessible by a walking trail and includes picnic tables, a composting restroom and fire circle.

Support Facilities

Several support facilities have been added since the previous plan update. A park manager residence and shop compound were added off Old Post Road, near the southwest edge of the park. The shop compound includes a park office, three-bay shop building, equipment storage area and shed, pole barn and two host sites. A staff boat launch is located next to the interpretive trailer. An inventory of existing recreational and support facilities is included below.

Scenic Day Use Area

Hiking trail (0.4 miles)
Picnic pavilion
Composting restroom
Stabilized parking (11 spaces)
Interpretive kiosk

Black Rail Day Use Area

Hiking trail (0.4 miles)
Unimproved parking area
Interpretive kiosk

Main Park Entrance

Picnic tables (2)
Canoe launch

Primitive Campsite

Picnic shelter
Fire ring

Group Camping Area

Interpretive hiking trail (0.6 miles)
Hiking trail (0.1 miles)
Picnic tables
Fire ring
Composting restroom

Other facilities

Paddling trails (16.6 miles)
Airboat trails (2.9 miles)

CONCEPTUAL LAND USE PLAN

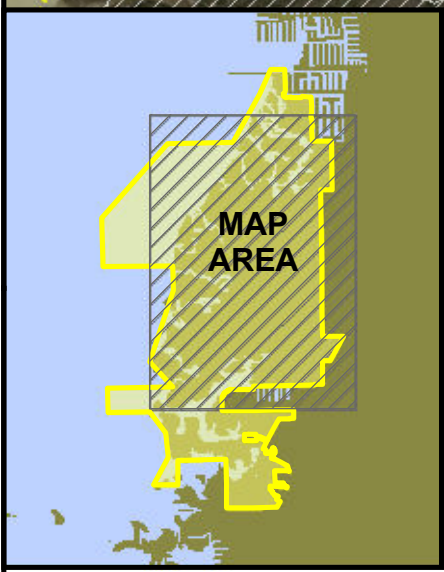
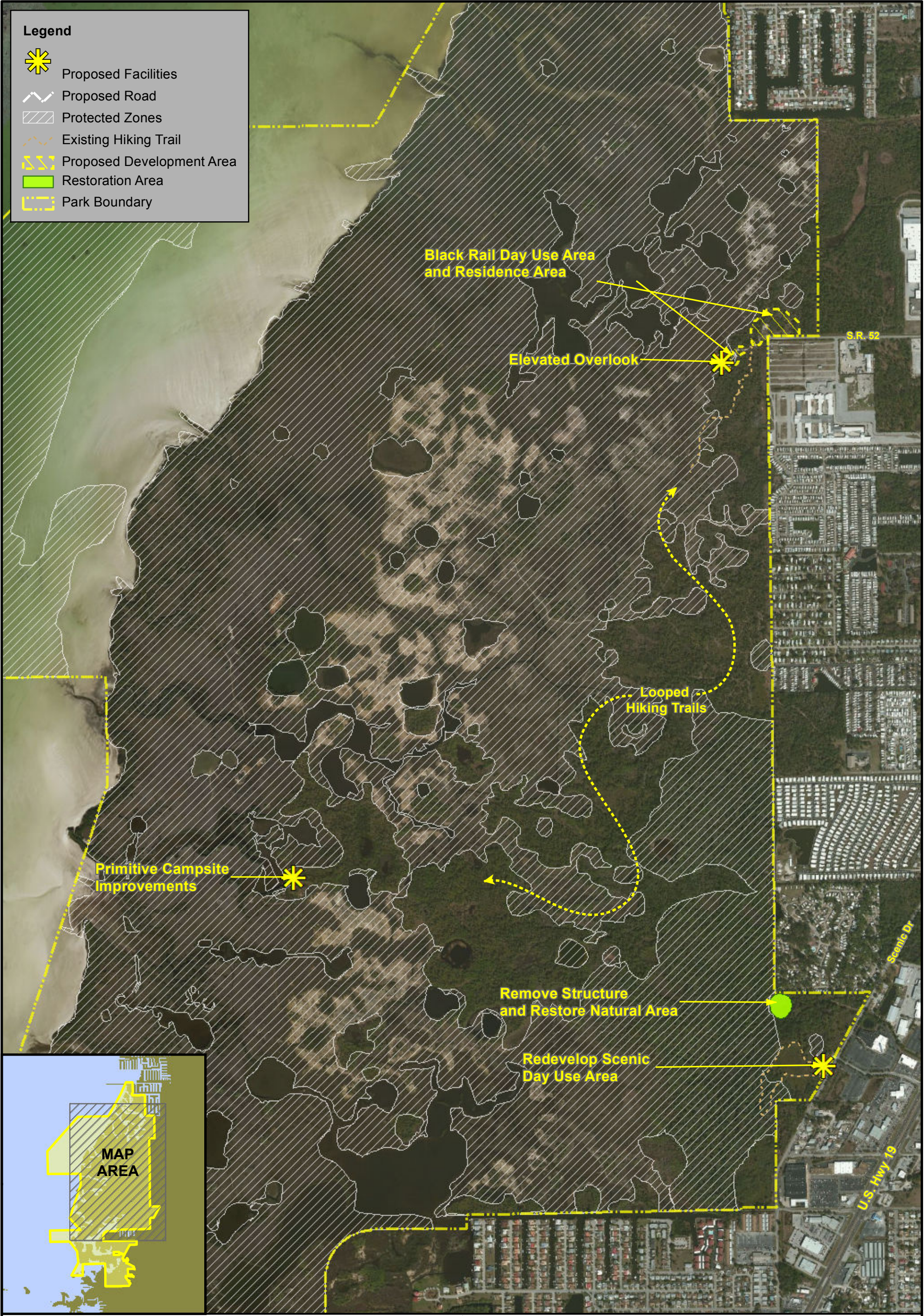
The following narrative represents the current conceptual land use proposal for this park. As new information is provided regarding the environment of the park, cultural resources, recreational use, and as new land is acquired, the conceptual land use plan may be amended to address the new conditions (see Conceptual Land Use Plan). A detailed development plan for the park and a site plan for specific facilities will be developed based on this conceptual land use plan, as funding becomes available.

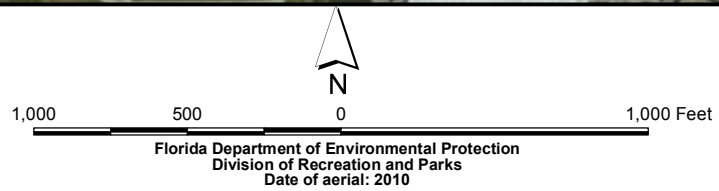
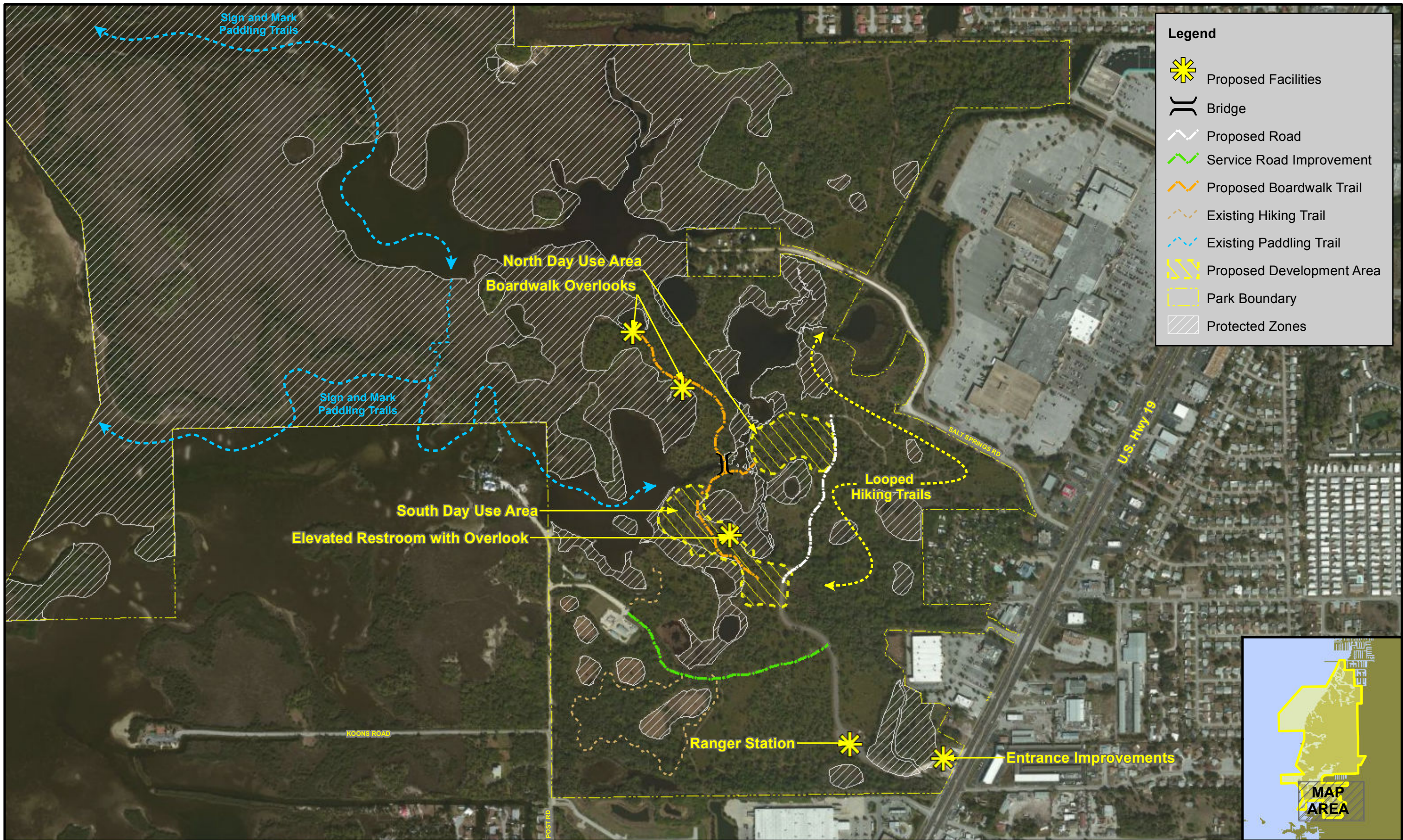
During the development of the management plan, DRP assessed potential impacts of proposed uses or development on the park resources and applied that analysis to decisions on the future physical plan of the park as well as the scale and character of proposed development. Potential impacts are more thoroughly identified and assessed as part of the site planning process once funding is available for facility development. At that stage, design elements (such as existing topography and vegetation, sewage disposal and stormwater management) and design constraints (such as imperiled species or cultural site locations) are more thoroughly investigated. Municipal sewer connections, advanced wastewater treatment or best available technology systems are applied for on-site sewage disposal. Stormwater management systems are designed to minimize impervious surfaces to the greatest extent feasible, and all facilities are designed and constructed using best management practices to avoid impacts and to mitigate those that cannot be avoided. Federal, state and local permit and regulatory requirements are met by the final design of the projects. This includes the design of all new park facilities consistent with the universal access requirements of the Americans with Disabilities Act (ADA). After new facilities are constructed, the park staff monitors conditions to ensure that impacts remain within acceptable levels.

The park lies on a strip of land between U.S. Highway 19 and the Gulf of Mexico. The linear nature of the park and its close proximity to development has made cohesive development of the park difficult, resulting in the development of three disconnected use areas. Since the marshy terrain that is common in the park prevents movement between use areas without leaving the park, operation issues have surfaced in the

Legend

-  Proposed Facilities
-  Proposed Road
-  Protected Zones
-  Existing Hiking Trail
-  Proposed Development Area
-  Restoration Area
-  Park Boundary





maintenance and monitoring of certain areas. For example, monitoring of the park boundary is difficult in some areas, leading to encroachment. To resolve some of these issues, this plan proposes focused recreational development at the north and south ends of the park, along with distributed staff presence and operational facilities along the length of the park. Focusing development in this pattern will allow for the expansion of recreational opportunities, enhanced visitor safety and experience, and minimal impact to the park's protected wetland zones.

Potential Uses

Public Access and Recreational Opportunities

Goal: Provide public access and recreational opportunities in the park.

The existing recreational activities and programs of this state park are appropriate to the natural and cultural resources contained in the park and should be continued. New and expanded activities and programs are also recommended and discussed below.

Objective: Maintain the park's current recreational carrying capacity of 716 users per day.

The park will continue to offer the current program of resource-based recreational activities, including picnicking, hiking, interpretive walks, canoe and kayak launching, saltwater paddling and boating, primitive youth group camping, primitive camping, shoreline fishing, wildlife observation and nature study.

Objective: Expand the park's recreational carrying capacity by 814 users per day.

Development of the park's south day use area will expand opportunities for picnicking and wildlife viewing. As demand for park facilities increase, further expansion of the southern day use area would increase opportunities for picnicking and hiking. A boardwalk trail with scenic overlooks would add new opportunities for walking, wildlife viewing and nature study. A second shoreline canoe launch at the Black Rail Day Use area would expand recreational paddling opportunities, and mapping and signing of existing paddling trails would enhance the quality of the paddling experience. A playground in this area would be an attractive amenity for visitors, particularly residents living nearby, by adding outdoor play opportunities and enhancing the picnicking experience. Development of extended loop trails at the Black Rail Day Use Area would expand and enhance recreational opportunities for hikers. The addition of two elevated observation structures, one at the south day use area and one at the Black Rail Day Use Area, would enhance wildlife and nature observation opportunities. The park will also consider additional appropriate camping and concession opportunities to increase recreational carrying capacity in the park. New and expanded recreational opportunities are discussed in further detail below.

Objective: Continue to provide the current repertoire of four interpretive, educational and recreational programs on a regular basis.

Currently, the park offers two interpretive programs. A ranger-led interpretive walking tour is provided by request to organized groups, such as those using the primitive youth group camp. Volunteers administer a second walking tour about native and exotic plant identification. The park should continue to provide the ranger-led interpretive tour and should work with volunteer groups to continue offering the plant identification tour.

The park offers a recreational paddling program in coordination with the CSO. The program includes organized paddling excursions, interpretive tours, races and other events. The park also hosts a popular "Halloween in the Woods" event, which offers games and themed walking tours.

Objective: Develop ten new interpretive, educational and recreational programs.

The park offers significant opportunities for interpretation and outreach. This plan recommends development of two additional visitor programs. Program topics could include a water resources program that informs local residents about the hydrologic systems and resources in their area and educates about how behaviors and habits can influence the water supply. A natural resource maintenance and restoration program could be useful to educate visitors about resource management activities that occur at the park, such as prescribed burning. In addition, a bird watching and nesting habitat program could inform visitors about the significance of the park's natural areas to shorebirds. If possible, DRP staff should partner with Pasco County's Energy and Marine Center (EMC) to develop collaborative interpretive programs. In order to coordinate and focus interpretive programming at the state park, development of an interpretive master plan is recommended. In addition, the park's Statement for Interpretation should be updated and implemented.

Proposed Facilities

Capital Facilities and Infrastructure

Goal: Develop and maintain the capital facilities and infrastructure necessary to implement the recommendations of the management plan.

The south day use area, accessible from the main park entrance off U.S. Highway 19, is expected to serve a majority of the park's visitors. The area will provide opportunities for picnicking, hiking, canoe and kayak launching, wildlife observation and nature study. An initial development area is located at the end of the existing park road, which will provide access to the existing canoe launch. A second development area, located north of Cauldron Spring, is identified for expansion of day use facilities as recreation demand increases. Facilities proposed in this area include parking, restroom, boardwalk trail and playground, as well as expanded opportunities for picnicking, hiking and other activities.

The Black Rail trailhead, located in the northern portion of the park, should be developed into a day use recreation area with accessible facilities and staff support area. The entrance off State Road 52 should be improved to include accessible parking and walkways, a picnic area, a canoe/kayak launch, and interpretive signage. The approach should be reconfigured to buffer views of adjacent development. An elevated overlook structure would enhance viewing of the park's natural scenery and allow visitors to enjoy a panoramic view of the natural areas. The existing hiking trail should be extended and looped for an enhanced recreation experience. Placement of staff residences will streamline management operations and distribute staff presence along the park boundary.

The potential for development and expansion of recreational opportunities at the Scenic Day Use Area is severely constrained by the sensitivity of adjacent natural communities and proximity of development. A study is recommended to assess the frequency and volume of visitor use. Following development of the south day use area, park and district staff should assess the feasibility of relocating facilities from Scenic Drive to the Black Rail Day Use Area. Housing sites to be used by security or law enforcement personnel, staff, volunteers or researchers should be constructed in the disturbed areas at Scenic Drive. This would distribute staff presence along the park's boundary and provide facilities that could help to achieve some of the research objectives outlined earlier in the Resource Management Program.

Majority of the existing facilities of this state park are appropriate to the natural and cultural resources contained in the park and should be maintained. New construction, as discussed further below, is recommended to improve the quality and safety of the recreational opportunities that visitors enjoy while in the park, to improve the protection of park resources, and to streamline the efficiency of park operations. The following is a summary of improved and new facilities needed to implement the conceptual land use plan for Werner-Boyce Salt Springs State Park:

Objective: Maintain all public and support facilities in the park.

All capital facilities, trails and roads within the park will be kept in proper condition through the daily or regular work of park staff and/or contracted help.

Objective: Improve/repair 25 existing facilities, 16.6 miles of trail and 0.3 miles of road.

Major repair projects for park facilities may be accomplished within the ten-year term of this management plan, if funding is made available. These include the modification of existing park facilities to bring them into compliance with the Americans with Disabilities Act (a top priority for all facilities maintained by DRP). The following discussion of other recommended improvements and repairs are organized by use area within the park.

Main Park Entrance: A ranger station is proposed for the main park entrance off U.S. Highway 19. The park drive was configured to accommodate a ranger station and includes a site with utility connections. The ranger station would be the center for visitor operations at the park, and it would allow staff to serve visitors coming and going from the park. The main park entrance improvements should include formal park signage and landscape improvements.

South Day Use Area: Several new facilities are proposed in the south day use area. Proposed improvements include paved parking, accessible walkways and boardwalks, restroom and picnic facilities. The proposed restroom facility is an elevated structure with accessible ramps that will also function as an overlook. A boardwalk from the parking area will lead visitors to the picnic area and shoreline canoe launch. Space near the launching area will be designated for a potential canoe and kayak rental concession, which could include a permanent or mobile rack for storing rental boats. Additional interpretive signage is also proposed for this area.

Scenic Day Use Area: Currently, the Scenic Drive trailhead is the most developed use area at the park. Due to the discontinuous nature of the park's use areas, monitoring of visitor activity and facilities is difficult. Therefore, a residence to be used by security or law enforcement personnel, staff, volunteers or researchers is proposed at this site. An honor box is also proposed.

Black Rail Day Use Area and Residence Area: Proposed improvements to the Black Rail trailhead would transform the site into a full day use recreation area. The improved area would include stabilized parking, accessible walkways, restroom and honor box. Recreational facilities proposed for this area include an elevated overlook, canoe/kayak launch, picnic facilities, interpretive signage and hiking trails. Proposed improvements would also include reconfiguring the approach and entrance from State Road 52 and adding two residence sites for volunteers or park staff.

Primitive Campsite: The existing temporary shelter at the primitive campsite on Hope Bayou is currently being replaced with a permanent structure that would offer shelter for campers.

Service Roads: The service road, which connects the shop compound to the main park drive, is prone to flooding and needs to be stabilized. In addition, low-water crossings are needed on service roads throughout the park.

Waterway Signage: Directional signage and trail markings for existing paddling and airboat trails should be improved. Signage that demarcates the park's boundary and informs boaters of the park rules and sensitive resources is also needed. Signage to increase awareness of ongoing school activities at the Pasco County Schools' Energy

and Marine Center should also be provided. The park should develop a signage plan to ensure strategic placement of informational signage and to avoid over-signage, as described in the Resource Management Component.

Objective: Construct nine new facilities, 7.5 miles of trail and 0.25 miles of road.

North Day Use Area. As demand for the state park increases, the park should add additional facilities and uses that are accessible from the main park entrance. An extension of the park drive will guide visitors to the north day use area. The north day use area should include additional paved parking, boardwalk extension and footbridge, playground, looped hiking trails, restroom, picnic facilities, and interpretive signage. Due to the park's delicate hydrology and prevalence of underground karst features, additional study will be necessary to design the proposed use area. The north day use area will be planned to minimize resource impacts, particularly hydrological disturbances, and the feasibility of implementing sustainable stormwater management strategies will be investigated. Particular care will be taken to ensure that the level of construction is appropriate for the site and serves to enhance and complement the natural character of the park.

Facilities Development

Preliminary cost estimates for these recommended facilities and improvements are provided in the Implementation Component of this plan. These cost estimates are based on the most cost-effective construction standards available at this time. The preliminary estimates are provided to assist DRP in budgeting future park improvements, and may be revised as more information is collected through the planning and design processes. New facilities and improvements to existing facilities recommended by the plan include:

Main Park Entrance

Ranger station
Signage
Landscaping

South Day Use Area

Paved parking (53 spaces)
Boardwalk
Restroom with overlook (1 small)
Canoe and kayak rental area
Picnic pavilions (3 small and 1 medium)
Interpretive signage

North Day Use Area

Paved parking (32 spaces)
Boardwalk
Footbridge
Playground
Looped hiking trails (2 miles)
Restroom (1 medium)
Picnic pavilions (3 small, 2 medium, and
1 large)
Interpretive signage

Black Rail Day Use Area

Stabilized parking (16 spaces)
Restroom (1 small)
Honor box
Paved walkways
Elevated overlook
Canoe and kayak launch
Picnic pavilions (3 small and 1 medium)
Hiking trails (5 miles)
Interpretive signage

Black Rail Residence Area

Residences (2)

Scenic Day Use Area

Honor box
Residence

Primitive Camp Site

Permanent shelter

Other improvements

Signage on paddling trails (16.6 miles)
Service road improvement (0.3 miles)
Boundary signage
Low-water crossings (6)

Recreational Carrying Capacity

Carrying capacity is an estimate of the number of users a recreation resource or facility can accommodate and still provide a high quality recreational experience and preserve the natural values of the site. The carrying capacity of a unit is determined by identifying the land and water requirements for each recreation activity at the unit, and then applying these requirements to the unit's land and water base. Next, guidelines are applied which estimate the physical capacity of the unit's natural communities to withstand recreational uses without significant degradation. This analysis identifies a range within which the carrying capacity most appropriate to the specific activity, the activity site and the unit's classification is selected (see Table 6).

Table 6: Recreational Carrying Capacity

Activity/Facility	Existing Capacity**		Proposed Additional Capacity		Future Capacity	
	One Time	Daily	One Time	Daily	One Time	Daily
Boating						
Paddling	160	320			160	320
Airboating*	12	12			12	12
Boating*	96	96			96	96
Trails and Boardwalks						
Interpretive nature trail	12	48			12	48
Boardwalk			10	40	10	40
Hiking trail	7	28	67	268	74	296
Picnicking	16	32	253	506	269	538
Youth Group Primitive Camp	20	20			20	20
Boat-in Primitive Camp	8	8			8	8
Interpretive Center	30	120			30	120
TOTAL	377	716	330	814	690	1,498

*Boats and airboats must launch from outside the park and stay in marked areas.

**Existing carrying capacity numbers have been revised from the approved plan to better reflect DRP guidelines.

The recreational carrying capacity for this park is a preliminary estimate of the number of users the unit could accommodate after the current conceptual development program has been implemented. When developed, the proposed new facilities would approximately increase the unit's carrying capacity as shown in Table 6.

Optimum Boundary

The optimum boundary map reflects lands that have been identified as desirable for direct management by DRP as part of the state park. These parcels may include public as well as privately owned lands that improve the continuity of existing parklands, provide the most efficient boundary configuration, improve access to the park, provide additional natural and cultural resource protection or allow for future expansion of recreational activities. The map also identifies lands that are potentially surplus to the management needs of DRP. As additional needs are identified through park use, development, or research, and changes to land use on adjacent private property occurs, modification of the park's optimum boundary may be necessary.

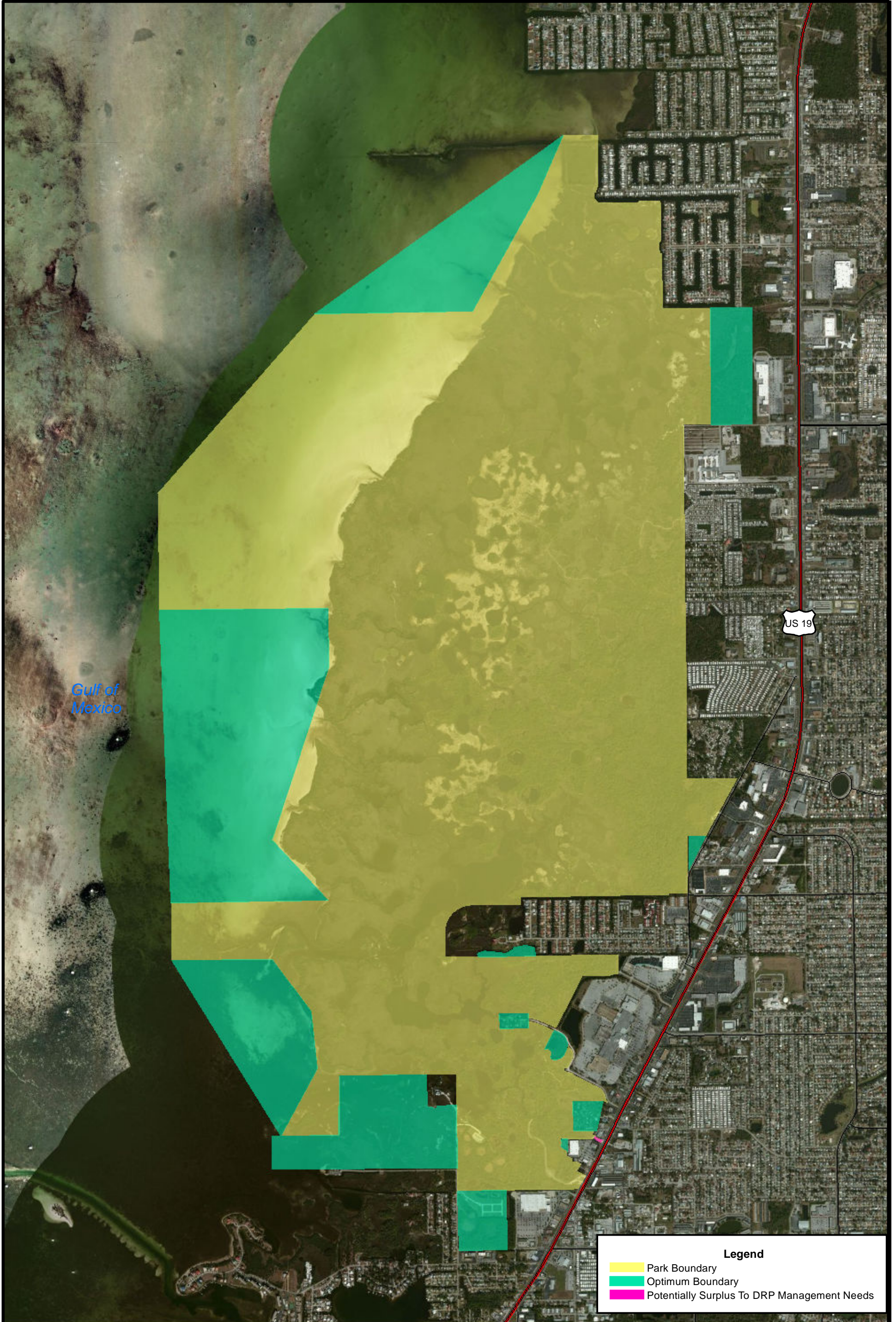
Identification of parcels on the optimum boundary map is intended solely for planning purposes. It is not to be used in connection with any regulatory purposes. Any party or governmental entity should not use a property's identification on the optimum boundary map to reduce or restrict the lawful rights of private landowners. Identification on the map does not empower or suggest that any government entity should impose additional or more restrictive environmental land use or zoning regulations. Identification should not be used as the basis for permit denial or the imposition of permit conditions.

The optimum boundary map identifies approximately 1,062 acres for potential addition to the state park (see Optimum Boundary Map). One 0.32-acre parcel off U.S. Highway 19 is identified as potentially surplus to the management needs of the park. This optimum boundary includes approximately 950 acres of sovereign submerged land, which will simplify the park boundary and allow for increased protection of coastal and offshore resources, including seagrass beds and Heart Spring. The optimum boundary includes undeveloped areas that would expand the contiguous protected habitat in the park and provide opportunities for adding recreational facilities and uses to the park.

The 56-acre parcel located on the north side of State Road 52 consists mostly of upland mesic flatwoods and is free of development. Illegal dumping has taken place on the adjacent area inside the park boundary and may be present on the optimum boundary parcels as well. Acquisition into the state park could help alleviate dumping on this property in the future. This property is adjacent to the day use area proposed in this plan and could be used to expand recreational or support facilities in this area.

The three-acre parcel on Scenic Drive and approximately ten acres on Salt Springs Road would complete the park boundary out to each roadway. Acquisition of these areas would make it easier to define and maintain the park boundary. The five-acre area located southwest of the Westport Subdivision contains Gar Spring. Acquisition would complete the park boundary up to the canal at the subdivision boundary. An area less than one acre is identified behind the furniture store on U.S. Highway 19, which would complete the park boundary out to the existing development.

The optimum boundary includes approximately 134 acres off Old Post Road, which would extend the state park boundary south to Brasher Park and to the edge of existing development. This area includes several privately owned parcels and a parcel owned by the Trustees, but not currently leased to DRP. This area also includes 36-acres east of Old Post Road, half of which was prepared for subdivision development with road and utility infrastructure. The property could be redeveloped for full-facility camping, cabins, or other uses.



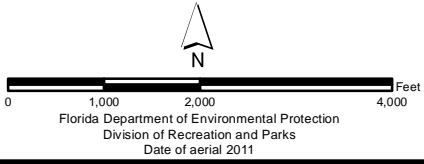
Gulf of Mexico

US 19

Legend

- Park Boundary
- Optimum Boundary
- Potentially Surplus To DRP Management Needs

WERNER-BOYCE SALT SPRINGS STATE PARK



OPTIMUM BOUNDARY MAP

IMPLEMENTATION COMPONENT

The resource management and land use components of this management plan provide a thorough inventory of the park's natural, cultural and recreational resources. They outline the park's management needs and problems, and recommend both short and long-term objectives and actions to meet those needs. The implementation component addresses the administrative goal for the park and reports on the Division of Recreation and Parks (DRP) progress toward achieving resource management, operational and capital improvement goals and objectives since approval of the previous management plan for this park. This component also compiles the management goals, objectives and actions expressed in the separate parts of this management plan for easy review. Estimated costs for the ten-year period of this plan are provided for each action and objective, and the costs are summarized under standard categories of land management activities.

MANAGEMENT PROGRESS

Since the approval of the last management plan for Werner-Boyce Salt Springs State Park in 2001, significant work has been accomplished and progress made towards meeting DRP's management objectives for the park. These accomplishments fall within three of the five general categories that encompass the mission of the park and DRP.

Acquisition

- Three acquisitions took place, adding a total of 83.26 acres to the park.

Park Administration and Operations

- A Citizen Support Organization (CSO), called the Salt Springs Alliance, was formed to support and benefit the park.
- A state secure computer system was added that allows the park to connect to DRP's intranet system.
- A shop compound was put in place and equipped with tools, vehicles, boats and tractor to aid in park operations, maintenance and resource management activities.
- Since fiscal year (FY) 2003/2004, volunteers have logged an average of 6,092 volunteer hours per year, for a total of 42,646 hours over seven years.

Resource Management

Natural Resources

- The park implemented a prescribed burn program in 2001. By 2008, all existing burn zones had been burned at least once, but many twice or more.
- Since 2001, the exotic plant removal program has been established, and over 890 acres of exotics have been treated.
- Firelines have been established along the park boundary and interior areas, as needed.

- Several low water crossings have been established to allow burn equipment to move along the park boundary.
- Boundary fencing was installed along the park boundary where needed.
- The park started an inventory of observed plant and bird species.
- The park was awarded a small water management grant to set up a water quality science program with local high school students.
- The eagle nests were surveyed and monitored.
- Two annual clean-up events were initiated in conjunction with Pasco County.
- The disturbed areas of the Black Rail trail, along Old Pasco County Road, were restored to predisturbance level and condition.
- The park was awarded an Americorps IP for exotic species treatment.
- Since the park implemented annual monitoring protocols for seagrass beds in 2006, five years of monitoring data has been collected regarding the health and condition of the park's seagrass beds.

Cultural Resources

- The location of all sites within the park were established.
- An annual inspection program of all sites was implemented.

Recreation and Visitor Services

- Since 2003, more than 30,000 Florida residents and visitors have enjoyed the park each year.
- In 2010, the park's two-day "Halloween in the Woods" event attracted more than 7,000 visitors on the first day and more than 6,000 visitors on the second day.
- One half-mile interpretive nature trail was completed at the Scenic Drive Trailhead.
- Monthly interpretive events and numerous other special events were held at the park, including the annual Salt Springs Classic kayak race.
- The park is coordinating with the local community to support the Cotee River Seafood Festival.
- The park worked cooperatively with the Pasco County School System to establish annual events, field trips, day trips, educational programs and other events for local students.
- The park is an active participant and supporter of DEP's Learning in Florida's Environment (LIFE) program.

Park Facilities

- Since 2001, a number of recreational facilities have been developed at the park, including two trailheads, two visitor restrooms, one interpretive building, two interpretive kiosks, one picnic shelter, one canoe and kayak launch, one primitive camp site, one primitive youth group camp site and 1.5 miles of hiking trails.
- Since 2001, a number of support facilities have been developed at the park, including one residence, three-bay shop building and park office, equipment

- A drainage culvert in the main park drive was upgraded to better accommodate the volume of water flowing under the roadway.
- In 2010, park and district staff GPS mapped nearly three miles of established airboat trails. This data will help DRP to manage airboat use in the state park and monitor potential impacts to the park's natural resources.

MANAGEMENT PLAN IMPLEMENTATION

This management plan is written for a timeframe of ten years, as required by Section 253.034 Florida Statutes. The Ten-Year Implementation Schedule and Cost Estimates (Table 7) summarizes the management goals, objectives and actions that are recommended for implementation over this period, and beyond. Measures are identified for assessing progress toward completing each objective and action. A time frame for completing each objective and action is provided. Preliminary cost estimates for each action are provided and the estimated total costs to complete each objective are computed. Finally, all costs are consolidated under the following five standard land management categories: Resource Management, Administration and Support, Capital Improvements, Recreation Visitor Services and Law Enforcement.

Many of the actions identified in the plan can be implemented using existing staff and funding. However, a number of continuing activities and new activities with measurable quantity targets and projected completion dates are identified that cannot be completed during the life of this plan unless additional resources for these purposes are provided. The plan's recommended actions, time frames and cost estimates will guide DRP's planning and budgeting activities over the period of this plan. It must be noted that these recommendations are based on the information that exists at the time the plan was prepared. A high degree of adaptability and flexibility must be built into this process to ensure that DRP can adjust to changes in the availability of funds, improved understanding of the park's natural and cultural resources, and changes in statewide land management issues, priorities and policies.

Statewide priorities for all aspects of land management are evaluated each year as part of the process for developing DRP's annual legislative budget requests. When preparing these annual requests, DRP considers the needs and priorities of the entire state park system and the projected availability of funding from all sources during the upcoming fiscal year. In addition to annual legislative appropriations, DRP pursues supplemental sources of funds and staff resources wherever possible, including grants, volunteers and partnerships with other entities. DRP's ability to accomplish the specific actions identified in the plan will be determined largely by the availability of funds and staff for these purposes, which may vary from year to year. Consequently, the target schedules and estimated costs identified in Table 7 may need to be adjusted during the ten-year management planning cycle.

Table 7
Werner-Boyce Salt Springs State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 1 of 5

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal I: Provide administrative support for all park functions.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Continue day-to-day administrative support at current levels.	Administrative support ongoing	C	\$190,000
Objective B	Expand administrative support as new lands are acquired, new facilities are developed, or as other needs arise.	Administrative support expanded	C	\$210,000
Goal II: Protect water quality and quantity in the park, restore hydrology to the extent feasible, and maintain the restored condition.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Conduct/obtain an assessment of the park's hydrological needs.	Assessment conducted	LT	\$133,500
Action 1	Conduct/obtain a thorough assessment of the park's hydrological restoration needs, including a stormwater assessment.	Assessment conducted	UFN	\$120,000
Action 2	Continue interagency coordination regarding water quality issues in and around the park.	Coordination ongoing	C	\$12,500
Action 3	Continue coordination with DEP staff to access water quality data for Energy Marine Center and Brasher Park.	Coordination ongoing	C	\$1,000
Objective B	Plan restoration of natural hydrological conditions and functions following hydrologic assessment, and implement restoration as appropriate.	# Acres restored or with restoration underway	UFN	\$60,000
Action 1	Develop and implement flow data recording protocols for springs.	Protocols implemented	UFN	\$60,000
Action 2	Following a proper stormwater assessment, coordinate with local agencies to redirect stormwater flow away from Cauldron Spring and attempt to capture and store stormwater before it enters the park.	Improved water quality in Cauldron Spring	UFN	TBD
Objective C	Restore natural hydrological function to salt marsh and mesic flatwoods natural communities to the extent possible by filling mosquito ditches at the north end of the park.	Hydrologic function restored	UFN	\$14,900
Action 1	Conduct/obtain an assessment of mosquito ditches within the park.	Assessment conducted	LT	\$3,200
Action 2	Coordinate with local municipalities and Pasco County Mosquito Control District regarding mosquito ditch restoration.	Percentage of restoration completed	LT	\$4,700
Action 3	Develop protocols and planting plans for mosquito ditch and airboat trail restoration within the park.	Protocols implemented and miles of restoration completed	UFN	\$7,000

* 2011 Dollars
ST = actions within 2 years
LT = actions within 10 years
C = long term or short term actions that are continuous or cyclical
UFN = currently unfunded need

Table 7
Werner-Boyce Salt Springs State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 2 of 5

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal III: Restore and maintain the natural communities/habitats of the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Within 10 years, have 557 acres of the park maintained within the optimum fire return interval.	# Acres within fire return interval target	LT	\$292,200
Action 1	Develop/update annual burn plan.	Plan updated	C	\$16,000
Action 2	Manage fire dependent communities for ecosystem function, structure and processes by burning between 138-274 acres annually, as identified by the annual burn plan.	Average # acres burned annually	C	\$270,000
Action 3	Continue to implement public education and outreach campaign regarding prescribed burning at the park.	Campaign continued	C	\$4,200
Action 4	Continue to implement protocols for preventing the spread of cogon grass by treating fireline maintenance equipment prior to construction of new firelines.	Protocols implemented	C	\$2,000
Objective B	Conduct natural community/habitat improvement activities on 0.5 acres of scrubby flatwoods community.	# Acres restored or with restoration underway	ST	\$300
Action 1	Develop and implement protocols for manual thinning of large oaks from scrubby flatwoods community.	Protocols implemented	ST	\$300
Objective C	Continue annual monitoring of the marine and estuarine seagrass beds in the park.	Report completed	C	\$28,400
Action 1	Continue to produce annual report of seagrass monitoring data.	Report completed	C	\$22,000
Action 2	Develop and implement protocols to annually map and document prop scarring in seagrass beds.	Protocols implemented	ST	\$6,400
Goal IV: Maintain, improve or restore imperiled species populations and habitats in the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Update baseline imperiled species occurrence inventory lists for plants and animals, as needed.	List updated	C	\$8,300
Objective B	Monitor and document 5 selected imperiled animal species in the park.	# Species monitored	C	\$43,500
Action 1	Implement monitoring protocols for 5 imperiled animal species including gopher tortoise, Scott's seaside sparrow, Marian's marsh wren, black rail and Wilson's plover.	# Species monitored	C	\$39,000
Action 2	Coordinate with FWC and the airboat user group to identify duplicative trails that could be potentially restored.	Duplicative trails identified	ST	\$4,500
Objective C	Coordinate with FWC and the airboat user group to assess effects of airboat use and identify appropriate corrective actions.	Assessment conducted	LT	\$10,200
Objective D	Post proper signage visible to all boaters entering the state park.	Signage posted	LT	\$17,300
Objective E	Monitor and document 2 selected imperiled plant species in the park.	# Species monitored	C	\$4,700
Action 1	Implement annual monitoring protocols for 2 including pine lily and Tampa vervain.	# Species monitored	C	\$4,700
Objective F	Continue to annually monitor the three Southern bald eagle nests in the park.	Monitoring conducted	C	\$4,200

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Table 7
Werner-Boyce Salt Springs State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 3 of 5

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal V: Remove exotic and invasive plants and animals from the park and conduct needed maintenance-control.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Annually treat 100 acres of exotic plant species in the park.	# Acres treated	UFN	\$280,000
Action 1	Annually develop/update exotic plant management work plan.	Plan developed/updated	C	\$16,000
Action 2	Implement annual work plan by treating 100 acres in park, annually, and continuing maintenance and follow-up treatments, as needed.	Plan implemented	UFN	\$260,000
Action 3	Annually pursue outside funding sources for conducting necessary exotic maintenance control.	Funding identified	C	\$6,000
Objective B	Continue to implement control measures on 2 exotic and nuisance animal species in the park.	# Species for which control measures implemented	UFN	\$70,000
Goal VI: Protect, preserve and maintain the cultural resources of the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Assess and evaluate 29 of 29 recorded cultural resources in the park.	Documentation complete	LT	\$2,400
Action 1	Develop and implement cyclical monitoring protocols for 29 recorded sites within the park.	Protocols implemented	C	\$2,400
Objective B	Compile reliable documentation for all recorded historic and archaeological sites.	Documentation complete	LT	\$31,800
Action 1	Ensure all known sites are recorded or updated in the Florida Master Site File.	# Sites recorded or updated	ST	\$1,600
Action 2	Complete a predictive model for high, medium and low probability of locating archaeological sites within the park.	Probability Map completed	LT	\$17,600
Action 3	Develop and adopt a Scope of Collections Statement.	Document completed	ST	\$2,300
Action 4	Conduct oral history interviews.	Interviews complete	LT	\$3,600
Action 5	Compile a park administrative history.	Report completed	ST	\$3,800
Action 6	Compile documentation to substantiate historic significance of Salt Spring, including research, coordination with local historical society and oral history interviews.	Documentation complete	LT	\$2,900
Objective C	Bring 3 of 29 recorded cultural resources into good condition.	# Sites in good condition	LT	\$600

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Table 7
Werner-Boyce Salt Springs State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 4 of 5

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Goal VII: Provide public access and recreational opportunities in the park.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Maintain the park's current recreational carrying capacity of 716 users per day.	# Recreation/visitor	C	\$280,000
Objective B	Expand the park's recreational carrying capacity by 814 users per day.	# Recreation/visitor	UFN	\$310,000
Action 1	Develop 3 new hiking, picnicking and boardwalk trail opportunities.	# Recreation/visitor opportunities per day	UFN	\$310,000
Objective C	Continue to provide the current repertoire of 4 interpretive, educational and recreational programs on a regular basis.	# Interpretive/education programs	C	\$8,500
Objective D	Develop 10 new interpretive, educational and recreational programs.	# Interpretive/education programs	UFN	\$65,000
Action 1	Develop/update and implement Statement for Interpretation.	Document completed/implemented	ST	\$5,000
Action 2	Develop and implement Interpretive Master Plan.	Plan implemented	LT	\$23,000
Action 3	Develop 10 new interpretive programs.	# Programs implemented	UFN	\$37,000
Goal VIII: Develop and maintain the capital facilities and infrastructure necessary to meet the goals and objectives of this management plan.		Measure	Planning Period	Estimated Manpower and Expense Cost* (10-years)
Objective A	Maintain all public and support facilities in the park.	Facilities maintained	C	\$550,000
Objective B	Expand maintenance activities as existing facilities are improved and new facilities are developed.	Facilities maintained	UFN	\$620,000
Objective C	Continue to implement the park's transition plan to ensure facilities are accessible in accordance with the American with Disabilities Act of 1990.	Plan implemented	LT	\$27,000
Objective D	Improve/repair 25 existing facilities, 16.6 miles of trail and 0.3 miles of road.	# Facilities/Miles of Trail/Miles of Road	UFN	\$1,912,000
Objective E	Construct 9 new facilities, 7.5 miles of trail and 0.25 miles of road.	# Facilities/Miles of Trail/Miles of Road	UFN	\$1,520,000

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Table 7
Werner-Boyce Salt Springs State Park Ten-Year Implementation Schedule and Cost Estimates
Sheet 5 of 5

NOTE: THE DIVISION'S ABILITY TO COMPLETE THE OBJECTIVES OUTLINED BY THE MANAGEMENT PLAN IS CONTINGENT ON THE AVAILABILITY OF FUNDING AND OTHER RESOURCES FOR THESE PURPOSES.

Summary of Estimated Costs			
Management Categories	Total Estimated Cost* (10-years)		
Resource Management	\$1,002,300		
Administration and Support	\$400,000		
Capital Improvements	\$3,459,000		
Recreation Visitor Services	\$1,833,500		
Law Enforcement Activities**	**Law enforcement activities in Florida State Parks are conducted by the DEP Division of Law Enforcement and by local law enforcement agencies.		

* 2011 Dollars
ST = actions within 2 years
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Addendum 1 – Acquisition History

Werner-Boyce Salt Springs State Park Acquisition History

Purpose of Acquisition

The Board of Trustees of the Internal Improvement Trust Fund of the State of Florida (Trustees) has acquired Werner-Boyce Salt Springs State Park to protect a relatively unaltered biological system representative of the Pasco-Hernando County Gulf Coast.

Public acquisition of this property would protect one of the last and large undeveloped coastal tracts in a fast growing urban areas of the State of Florida by (1) protecting and enhancing native plant and animal species occurring in this coastal environment; (2) preventing manmade environmental hazards such as vandalism, illegal dumping and contaminant discharge; (3) providing passive outdoor recreational opportunities to residents such as hiking, bird-watching, nature studying, photography and fishing; and (4) providing education programming on the property with the goal of enhancing the general public awareness of the importance of coastal habitats and maintaining the quality of life.

Sequence of Acquisition

On December 31, 1992, the Trustees obtained title to approximately 1,878 acres of property constituting the initial area of Werner-Boyce Salt Springs State Park. The property was purchased under the Environmentally Endangered Lands (EEL) category of the Preservation 2000 program, as defined in Section 18-8.003, Florida Administrative Code. The Trustees purchased the property from (a) Jack Pines, C. A. Boswell, and NATIONSBANK of Florida (formerly known as NCNB National Bank of Florida) as co-personal representatives of the Estate of Philip Berkovitz and as Trustees of the Philip Berkovitz Trust created under the will of Philip Berkovitz, and (b) Pines Enterprises, Inc.. Since this initial purchase, the Trustees have acquired several parcels under Preservation 2000/ Additions and Inholdings (P2000/ A&I) and Florida Forever/ A&I programs, through a donation, and through a management lease agreement, and added all these new parcels to Werner-Boyce Salt Springs State Park. As the result of these additions, the current area of the park is approximately 3,999 acres.

Title Interest

The Trustees and Pasco County hold fee simple title to different portions of Werner-Boyce Salt Springs State Park (see Reference Map).

Lease Agreement

On August 9, 1996, the Trustees leased the 1,878-acre property, which it acquired on December 31, 1992, to Pasco County under a 50-year lease, Lease No. 3998. The County was to manage this property as a county park for the purpose of an environmental reserve with passive recreational activities. However, on February 15, 2000, the Board

Werner-Boyce Salt Springs State Park Acquisition History

of County Commissioners of Pasco County terminated and released Lease No. 3998 and returned the land to the Trustees.

On July 3, 2000, the Trustees leased the 1,878-acre property to the State of Florida Department of Environmental Protection, Division of Recreation and Parks (DRP), under a 50-year lease, Lease No. 4291. Lease No. 4291 became effective as of July 1, 2000, and it will expire on June 30, 2050.

On July 1, 2000, DRP leased approximately 1,683-acres of property from Pasco County to manage as part of the state park. The Division leased this property under a five-year term management lease, which ended in 2005. On August 15, 2012, DRP entered into a new management lease agreement with the County for the property. The new management lease is for a period of 20 years, and it is scheduled to expire on August 16, 2032.

Pasco County purchased its 1,683-acre property with the proceeds from Preservation 2000 bonds issued by the State of Florida for the benefit of State of Florida Department of Community Affairs, Florida Communities Trust (FCT) and through an in-kind donation provided by the owner of the parcel, Eugene V. Werner. Use of this County-owned property is subject to certain conditions, limitations and restrictions stated in the Grant Award Agreement (dated September 26, 1994) and Amendment I to the Grant Award Agreement (dated October 24, 2000) between the County and FCT. A Release of Grant Award Agreement was executed between the County and FCT on July 10, 2003, terminating the Grant Award Agreement upon transfer of title to property to the Trustees (which has not yet occurred).

Under Lease No. 4291 and the management lease agreement with Pasco County, DRP manages the state park primarily for establishment and operation of natural resource based public outdoor recreation which is compatible with the conservation and protection of these lands, along with other related uses necessary for the establishment of this purpose as designated in the unit management plan for this park.

Special Conditions on Use

Werner-Boyce Salt Springs State Park is designated as a single-use property to provide resource-based public outdoor recreation and other park-related uses. Uses such as water resource development projects, water supply projects, stormwater management projects, linear facilities and sustainable agriculture and forestry are not consistent with the purposes for which DRP manages the park.

Werner-Boyce Salt Springs State Park Acquisition History

Outstanding Reservations

The following is a listing of outstanding encumbrances that apply to Werner-Boyce Salt Springs State Park.

Type of Instrument: Warranty Deed
Grantor: JJK Real Estate Investors, Limited Partnership, a Nevada Limited Partnership
Grantee: Trustees
Beginning Date: March 26, 2002
Ending Date: Perpetuity
Encumbrance: The deed is subject to a perpetual non-exclusive easement for ingress and egress in favor of Gloria Cherry.

Type of Instrument: County Deed
Grantor: Pasco County
Grantee: Trustees
Beginning Date: December 11, 2000
Ending Date: Perpetuity
Encumbrance: Schedule B of this County Deed refers to a certain corrective deed in favor of the United States of America. According to this Corrective Deed, dated December 15, 1988, the property conveyed by the County deed shall be used only as a nature preserve, and shall for perpetuity remain in its condition as of September 5, 1986, and shall never be altered, modified, built upon or changed in any way at any time.

Werner-Boyce Salt Springs State Park Acquisition History

Addendum 2 – Advisory Group Members and Report

Werner-Boyce Salt Springs State Park Advisory Group Members

Local Government Representatives

The Honorable Ann Hildebrand,
Chairman
Pasco County Board of County
Commissioners
8731 Citizens Drive
New Port Richey, Florida 34654

City Council Representative (to be
appointed at City Council meeting on
Sept. 11, 2012)
c/o Tom O'Neill, City Manager
City of Port Richey
6333 Ridge Road
Port Richey, Florida 34668

The Honorable Bob Consalvo, Mayor
City of New Port Richey
5919 Main Street
New Port Richey, Florida 34652

Agency Representatives

Christine Dorrier, Park Manager
Werner-Boyce Salt Springs State Park
9120 Old Post Road
Port Richey, Florida 34673

Amy Clifton, Regional Biologist
Southwest Region
Florida Fish and Wildlife
Conservation Commission
3900 Drane Field Road
Lakeland, Florida 33811-1207

Butch Mallett, Senior Forest, Other
Public Lands, Bureau of Forest
Management
Florida Department of Agriculture and
Consumer Services
Florida Forest Service
12460 Chelsey Road
Brooksville, Florida 34613

Chris Reed, Senior Land Management
Specialist, Operations and Land
Management Bureau
Southwest Florida Water Management
District
2379 Broad Street
Brooksville, Florida 34604-6899

Laura Lange Hill, Supervisor of
Curriculum & Instructional Services,
Science K-12
Pasco County Schools
7227 Land O'Lakes Blvd.
Land O'Lakes, Florida 34638

Tourist Development Council Representative

Ed Caum, Public Communications
Specialist
Pasco County TDC/Office of Tourism
Development
8731 Citizens Drive
New Port Richey, Florida 34654

Werner-Boyce Salt Springs State Park Advisory Group Members

Environmental and Conservation

Representatives

Barbara Walker, Vice President
West Pasco Audubon Society
3019 Bradford Circle
Palm Harbor, Florida 34685

Jan Howie, Conservation Chair Nature
Coast Chapter of the Florida Native
Plant Society
5500 Leahy Lane
New Port Richey, Florida 34652

Citizen Support Organization Representatives

Doug Cassidy, President
Salt Springs Alliance
8627 Betty Street
Port Richey, Florida 34668

Recreational User Representatives

Mr. Greg Abbott
West Coast Airboat Club
5851 Michigan Avenue
New Port Richey, Florida 34652

Hank Brooks, Secretary
Florida Paddling Trails Association
107 Marshall Street W.
Safety Harbor, Florida 34695

Adjacent Landowners

Mike Armato, President
Westport Association, Inc.
9831 San Sierra Way
Port Richey, Florida 34668

Rich Galli, Vice President
Leisure Beach
12813 3rd Isle
Hudson, Florida 34667

Werner-Boyce Salt Springs State Park Advisory Group Report

The Advisory Group meeting to review the proposed land management plan for Werner-Boyce Salt Spring State Park was held at the Park (interpretive trailer) on Thursday, September 20, 2012, at 9:00 AM.

Commissioner Henry Wilson represented Commissioner Ann Hildebrand. Donna Hoague represented Laura Lange Hill. Ken Tracey represented Barbara Walker. Paul Herman represented Doug Cassidy. Ronald Agin represented Mike Armato. Hank Brooks and the City of Port Richey representative were not in attendance. Chris Reed (Southwest Florida Water Management District) did not attend but sent in written comments by email. All other appointed Advisory Group members were present as well as Scott Clark (Westport Association), Alan Cribb (Salt Springs Alliance), and Jerry Taber (Florida DEP/Florida Communities Trust). Attending staff were Christine Dorrier, Ezell Givens, Chris Becker, Natalie Cole, and Jennifer Carver.

Ms. Carver began the meeting by explaining the purpose of the Advisory Group and reviewing the meeting agenda. She provided a brief overview of the Division of Recreation and Parks' (DRP) planning process. Ms. Carver and Ms. Dorrier summarized public comments received during the previous evening's public workshop. Ms. Carver then asked each member of the Advisory Group to express his or her comments on the draft plan.

Summary of Advisory Group Comments

Richard Galli (Leisure Beach) asked if more boating entrances/launches were planned for the park, as more motor boats would require more patrols. Staff indicated that no new motor boat launches are planned for the park. In response to a discussion about channels running through the park, Mr. Galli stated that Leisure Beach was told they would not be able to reopen their channel if it became impassible. Leisure Beach acquired a maintenance permit and is keeping the channel open through regular maintenance.

Jan Howie (Nature Coast Native Plant Society) made several suggestions for interpretive programs in the park, including native plant hikes led by qualified volunteers. She indicated that there is a real need for this kind of program in the park, as long as breeding birds are not negatively impacted. Ms. Howie also suggested increasing archaeology/history programs and providing displays for artifacts. She suggested that a bike rack be included in development at the main day-use area. Ms. Howie suggested that signage at the canoe/kayak launch could alert paddlers when spring (extreme) tides are likely. Ms. Howie asked if there was potential for park visitors to use the Pasco County Schools' facilities for educational programs. She also asked what the entry fee would likely be for the park.

Werner-Boyce Salt Springs State Park Advisory Group Report

Donna Hoague (Pasco County Schools) mentioned that the public does not realize the Energy and Marine Center is a school and has classes going on. Boaters come close to their students/class sessions. She inquired how far out into the submerged lands/water the school can enforce access and/or place signage. Ms. Hoague indicated that the Center has a good relationship with the park and welcomes people to visit on weekends and times that students are not present.

Greg Abbott (West Coast Airboat Club) suggested that more education is needed to inform visitors/boaters about the park. Many people entering the park from the Gulf do not know they are in a State Park because there are no signs. He suggested that rules and information about the park and the school facility be posted on kiosks at shelters, kayak launches, public boat ramps and other facilities in the area to increase awareness. Mr. Abbott indicated that some of the airboat users that come to the park are used to fresh water airboating and do not understand the difference in how to operate in a saltwater environment. He believes education will make a difference. Mr. Abbott also suggested providing floating camping platforms as a way to increase the number of users in the park and provide more opportunities for camping. Mr. Abbott also suggested that a use permit be made available specifically for this park, similar to the airboat permits for Chassahowitzka National Wildlife Refuge. Such permits would increase visitor count accuracy and ensure more users are familiar with the park rules. Mr. Abbott mentioned that a proposed Pasco County trail along the park boundary (see Mr. Caum's comments below) would increase park visitation. Mr. Abbott mentioned the airboat user group's commitment to supporting the park through various activities such as the Coastal Cleanup, building a shelter at the Hope Bayou primitive campsite and others. Airboat users often rescue paddlers stranded in the park by low tides.

Butch Mallett (Department of Agriculture and Consumer Services, Florida Forest Service (DACS)) stated that the Florida Forest Service (FFS) would like to be of assistance in resource management and fire management issues. Staff indicated that they have been working with the FFS on community outreach efforts to Westport, Osteen and the Suncoast RV Resort regarding FIREWISE communities and the purpose and value of controlled burning in the park. The main concern of the FFS is taking care of the trees and native plants and encouraging native ecosystems within the park. Mr. Mallett mentioned that a proposed Pasco County trail along the park boundary (see Mr. Caum's comments below) would provide a good fire line/break. Mr. Mallett asked if there were any plans to provide interpretive information regarding the old salt works within the park. He thought that such an exhibit had been created previously.

Ron Agin (Westport Association) stated that Westport residents would appreciate better notification of controlled burns and spraying activities for Brazilian pepper and other exotics. He indicated that residents would like information on how the management plan affects maintenance of Westport's channels and canals. Mr. Agin stated that the draft plan mentioned that maintenance dredging of the channel through

Werner-Boyce Salt Springs State Park Advisory Group Report

Double Hammock Creek to Westport had been proposed but has not been conducted in recent years. Staff indicated that the channel has not been dredged since the property became a State Park. Mr. Agin stated that the park has a beautiful estuary, and it is important that boaters and paddlers operate in appropriate areas. Mr. Agin suggested installing webcams showing the eagle nesting sites so more people could have access and an appreciation of the park's resources.

Paul Herman (Salt Springs Alliance) reiterated concerns of Westport residents about the channel that runs through the park. He stated that the channel is very narrow and shallow and asked if it could be opened up were it to become impassible. Staff indicated that any dredging would require a permit, and such applications are evaluated on a case-by-case basis. Several additional members of Salt Springs Alliance served on the Advisory Group representing other organizations with which they are involved.

Ed Caum (Pasco County Tourist Development Council (TDC)) stated that residents can sign up for notifications on the County's website and receive information about upcoming controlled burns and other items. Mr. Caum suggested that residents maintain their canals and channels to keep them from closing up, as it is more cost-effective. He also mentioned that the property just north of park entrance on US 19 is for sale. This parcel could provide space for a welcome center for the park and other tourism opportunities in the County. Pasco County TDC funding might be available to purchase the property and make it a welcome center, and he suggested that a partnership between the park, the TDC and the Board of County Commissioners would be beneficial to provide a long-range welcome/education/interpretive center and observation tower in this location. He recommended that the parcel be added to the optimum boundary map. Mr. Caum also mentioned the West Pasco Regional Trail that the County has been working on. The trail corridor would run along the southern and eastern boundary of the park and would require moving the park fence in some locations to provide access to the corridor. He mentioned that the trail corridor along the park perimeter could reduce dumping along the park boundary. He indicated that the County is hoping to secure funding for the trail design and construction and would like to have the trail as shovel-ready as possible. Mr. Caum also mentioned that the County is interested in properly addressing watersheds and drainage in the park as well as the safety of Old Post Road.

Amy Clifton (Florida Fish and Wildlife Conservation Commission (FWC)) commended staff and stakeholders on working together for the benefit of the park and preserving habitat. Ms. Clifton stated that this park is the southern end of the habitat and a critical anchor spot along the Gulf Coast for numerous imperiled species and recommended that this be stated in the plan. She stated it is good that the plan discusses the airboat trails and plans for signage, but FWC is concerned about how compliance with the signs/rules will be monitored and enforced. Staff indicated that they monitor airboat usage, work closely with the airboat users to self-police, and bring in law enforcement

Werner-Boyce Salt Springs State Park Advisory Group Report

as necessary. Staff also stated that additional FWC law enforcement presence in the shallow areas would be helpful. Ms. Clifton asked about contingency plans for how to work with airboat users if leadership changes. Both staff and Mr. Abbott (West Coast Airboat Club) mentioned the continued strong, broad support for the park among airboat users and the need for education and signage at kiosks at boat ramps and along the park boundary. Ms. Clifton asked how unauthorized airboat trails are handled. Staff indicated that better marking of airboat trails is needed and that they plan to block off unauthorized trails.

Ken Tracey (West Pasco Audubon Society) mentioned that bird walks are popular but need to be scheduled so they do not conflict with nesting season. He suggested putting up nesting season signs to restrict access to nesting areas. Mr. Tracey does not think that the action item listed in Table 7 (page 112), Goal IV, Action 2 does enough to reduce unneeded airboat trails and restore the natural community. Staff pointed out the text on page 74 of the draft plan that expands on the action listed in Table 7. Mr. Tracey also provided detailed written comments, which are summarized in the following section of this report. In response to a question from Mr. Abbott about a previously proposed kayak trail using one of the mosquito ditches in the park, Mr. Tracey stated that, in his opinion, it would be better for the ditches to be filled and the mangroves removed to encourage salt marsh restoration. He stated that mangroves provide habitat for red wing blackbirds which kill the seaside sparrows. There is competition between the two birds, and he has seen few seaside sparrows in areas of the park that have mangroves.

Summary of Written Comments

Chris Reed (Southwest Florida Water Management District) was unable to attend the meeting and provided written comments to DRP staff. Mr. Reed commended the plan authors for a well thought-out plan and offered several comments regarding resource management. Mr. Reed encouraged the park to meet goals for prescribed fire management in the park and to prioritize FIREWISE education for park visitors and neighboring residents. He also encouraged staff to carefully consider multiple options for the natural community improvement activities in the scrubby flatwoods. Mr. Reed recommended coordinating seagrass monitoring with partner agencies and conducting regular monitoring for salt marsh and salt flats to identify disturbances and impacts. He suggested using qualified volunteers for monitoring of the floral and faunal imperiled species in the park and provided information on potential issues with exotics species (climbing ferns and feral hogs). Mr. Reed also encouraged DRP to continue working with partner agencies to monitor the springs within the park, to seek assistance for addressing stormwater runoff entering the park, and to prioritize addressing the mosquito ditching in the park.

Ken Tracey (West Pasco Audubon Society) provided written comments to DRP staff in addition to his comments at the meeting. Mr. Tracey stated that the Reference Map shows incorrect locations for bald eagle nests and mentions that additional monitoring

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and enforcement may be needed due to harassment. Mr. Tracey indicated several corrections needed regarding plants and animal species mentioned in the plan. Mr. Tracey recommended that plan emphasize the unique nature of the salt barrens (flats) and include reference to protection of the buttonwood trees growing in that natural community. He pointed out that no management actions are listed for the Florida prairie warbler. Mr. Tracey recommended that access to the salt barrens be controlled during nesting season. He also stated his observations that airboat trails have impacted nesting areas and recommended management measures to restore habitat and reduce impacts. Mr. Tracey is concerned about looting of cultural resources from the park and provided staff with two artifacts that he purchased from a nearby vendor that were reportedly found on park property. Mr. Tracey suggested that a concession provide airboat tours within the park, similar to that in Myakka River State Park. Mr. Tracey provided staff with copies of aerial photos that indicate new (unauthorized) airboat trails created since 2001. He also provided information regarding the location of nesting areas in the park within various management zones.

Staff Recommendations

The staff recommends approval of the proposed management plans for Werner-Boyce Salt Springs State Park as presented, with the following significant changes:

- Enhance the discussion of signage/education to reflect the need to provide awareness of ongoing school activities at the Energy and Marine Center and ensure area boaters and residents are familiar with the park rules and sensitive resources.
- Include language regarding consideration of additional appropriate camping and concession opportunities.
- Clarify the language related to dredging for the Double Hammock Creek channel (to Westport) to reflect the existing restrictive covenant related to a federal court order which prohibits alteration of the property.
- Incorporate language in the plan to indicate that DRP supports the potential shared-use trail under development by Pasco County and will work with the county to determine the most appropriate location for the trail.
- Modify the Optimum Boundary to include state-owned sovereign submerged lands along Salt Springs Run to provide greater enforcement and public awareness opportunities.
- Revise the plan text to reflect the need for increased law enforcement to protect bald eagle nests and other natural and cultural resources in the park.
- Modify the natural community descriptions to correctly identify the species present in these communities.
- Enhance the salt marsh community description to provide additional protections during shorebird nesting season.
- Clarify the discussion of imperiled species to reflect that the park is a critical anchor spot for numerous imperiled species.

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- Modify the text related to imperiled species management objectives to include effects of mosquito ditches on imperiled species and to discuss airboat travel control measures and restoration areas. Update the actions listed in Table 7 to reflect these changes.

A suggestion was made to include management actions for the Florida prairie warbler and the common night-hawk within the Imperiled Species section of the plan. These species do not meet the criteria to be included in this section, as they are not tracked by FNAI as critically imperiled or imperiled (G1, S1 or G2, S2) and listed by the USFWS or FWC.

A recommendation was made to amend the park's optimum boundary to include the parcel just north of the main park entrance road to provide space for a visitor center for the area. While DRP is interested in working with Pasco County to improve visitor access and recreational opportunities within the park, the particular parcel identified would not significantly enhance natural and cultural resource protection and is not needed for access to the park's existing recreational uses.

Additional revisions were made throughout the document to address editorial corrections, consistency of spellings and notations, and other minor corrections.

Notes on Composition of the Advisory Group

Florida Statutes Chapter 259.032 Paragraph 10(b) establishes a requirement that all state land management plans for properties greater than 160 acres will be reviewed by an advisory group:

"Individual management plans required by s. 253.034(5), for parcels over 160 acres, shall be developed with input from an advisory group. Members of this advisory group shall include, at a minimum, representatives of the lead land managing agency, co-managing entities, local private property owners, the appropriate soil and water conservation district, a local conservation organization, and a local elected official."

Advisory groups that are composed in compliance with these requirements complete the review of State park management plans. Additional members may be appointed to the groups, such as a representative of the park's Citizen Support Organization (if one exists), representatives of the recreational activities that exist in or are planned for the park, or representatives of any agency with an ownership interest in the property. Special issues or conditions that require a broader representation for adequate review of the management plan may require the appointment of additional members. DRP's intent in making these appointments is to create a group that represents a balanced cross-section of the park's stakeholders. Decisions on appointments are made on a case-by-case basis by DRP staff.

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Addendum 4 – Soil Descriptions

Werner-Boyce Salt Springs State Park Soil Descriptions

(11) Adamsville fine sand - This nearly level, somewhat poorly drained soil is on low broad flats that are less than 2 feet higher in elevation than the adjacent sloughs. Individual areas are irregular in shape and range from 5 to 200 acres. Slopes are less than 2 percent.

Typically, the surface layer is very dark gray fine sand about 3 inches thick. The subsurface layer is grayish brown fine sand 5 inches thick. The underlying material to a depth of 80 inches or more is fine sand. It is very pale brown to a depth of about 23 inches, light gray to a depth of about 57 inches, and white below 57 inches.

Included with this soil in mapping are small areas of Narcoossee, Tavares, and Zolfo soils. Also included, along rivers, are a few areas of soils that occasionally are flooded. The included soils generally make up less than 10 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of 20 to 40 inches for 2 to 6 months; but it may rise to within 20 inches of the surface for less than 2 weeks during very wet seasons. It recedes to a depth of more than 40 inches during dry periods. In this soil, available water capacity is low to very low. Natural fertility is low. Permeability is rapid.

A large part of this soil is in natural vegetation of slash pine, longleaf pine, laurel, bluejack, turkey oak, water oak, and an understory of saw palmetto and pineland threeawn.

(17) Immokalee fine sand - This nearly level, poorly drained soil is in broad flatwood areas. Individual areas are somewhat oblong in shape. Slopes are smooth to convex and range from 0 to 2 percent.

Typically, the surface layer is very dark gray fine sand about 4 inches thick. The subsurface layer is gray sand to a depth of about 16 inches and white fine sand to a depth of 33 inches. The subsoil is dark reddish brown fine sand in the upper 12 inches and dark brown fine sand in the lower 17 inches. Below the subsoil, to a depth of 80 inches or more, is very pale brown fine sand.

Included with this soil in mapping are similar soils that differ by having a dark-colored surface layer thicker than 8 inches. Also included are small areas of Myakka and Pomona soils. The included soils make up about 15 percent of the map unit.

The water table is at a depth of less than 10 inches for 2 months in most years and is between depths of 10 and 40 inches for a period of more than 8 months each year. It is at a depth of more than 40 inches during dry periods. The available water capacity is medium in the subsoil but very low or low in the other layers. Permeability is rapid in

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the surface and subsurface layers and in the substratum and is moderate in the subsoil. Internal drainage and runoff are slow. Natural fertility is low.

Areas that have adequate drainage are used mainly for improved pasture. Other areas are used for range or remain in forest. The natural vegetation is longleaf pine, slash pine, and an undergrowth of saw palmetto, running threeawn, and scattered fetterbush.

(18) Electra variant fine sand, 0 to 5 percent slopes – This nearly level to gently sloping soil is located on upland ridges and is somewhat poorly drained. Individual areas are irregular in shape. Slopes are smooth to convex.

Typically, the surface layer is dark gray to gray fine sand and about 5 inches thick. The subsurface layer is white fine sand about 34 inches thick. The subsoil is dark brown fine sand to a depth of 41 inches mixed with dark gray and dark yellowish brown sand to a depth of 51 inches. Soft, white limestone underlies the subsoil and extends to a depth of 80 inches or more.

Included with this mapping unit are small areas of Narcoosee and other similar soils which make up about 12 percent of the map unit.

The water table is at a depth of 25 to 40 inches under natural conditions. The available water capacity is very low in the surface and subsurface layers as permeability is rapid in these layers.

A small area of this soil type is located along the eastern boundary in the southern portion of the park. Native vegetation includes sand pine, slash pine, pineland threeawn, saw palmetto, running oak, wild blueberry, and bluestem.

(19) Paola fine sand, 0 to 8 percent slopes – This excessively drained, nearly level to sloping soil is in the sandhill areas of the county. Individual areas are irregular in shape. Slopes are smooth to concave.

Typically, the surface layer is gray fine sand about 3 inches thick. The subsurface layer is white fine sand and extends to a depth of about 26 inches. The subsoil is brownish yellow fine sand that has a few tongues of white fine sand from the subsurface layer mixed with it. Below a depth of 57 inches, and extending to a depth of 80 inches or more, is very pale brown fine sand.

Included with this soil in mapping are small areas of Astatula, Candler, and Tavares soils. The included soils make up less than 10 percent of the map unit.

The water table is below a depth of 72 inches. Both the available water capacity and natural fertility are very low. Permeability is very rapid throughout.

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Few areas of this soil have been cleared. The native vegetation is sand pine, scrub live oak, scattered turkey oak, bluejack oak, and an undergrowth of scattered saw palmetto, sand heath, cacti, mosses, and lichens.

(20) Aripeka fine sand - This nearly level, somewhat poorly drained soil is on low ridges adjacent to the saltwater marsh. Individual areas are commonly long and narrow and are parallel to the marsh. Slopes are less than 2 percent.

Typically, the surface layer is dark grayish brown fine sand about 2 inches thick. The subsurface layer consists of fine sand and is 10 inches thick; it is grayish brown in the upper 7 inches and white in the lower 3 inches. The subsoil begins at a depth of 12 inches and extends to a depth of 26 inches. It is yellowish brown fine sand in the upper 5 inches, strong brown fine sandy loam in the next 6 inches, and strong brown sand clay loam, which contains limestone cobbles, in the lower 3 inches. Hard, white and yellow limestone begins at a depth of 26 inches. Solution holes that vary in depth and diameter are in the limestone.

Included with this soil in mapping are similar soils which have a subsoil texture of sand clay, are more poorly drained, have surface and subsurface layers that are more than 20 inches thick, or have limestone within a depth of 20 inches. The included soils make up about 25 percent of the map unit.

The water table is at a depth of 18 to 30 inches for 2 to 6 months and at a depth of 30 to 60 inches for 6 months or more during most years. During severe storms, this soil may be very briefly flooded by storm tides. The available water capacity is low in the surface and subsurface layers and is medium in the subsoil. Natural fertility is low. Permeability is rapid in the surface and subsurface layers and is moderately rapid in the subsoil.

The native vegetation is longleaf and slash pines, live oak, southern red cedar, and cabbage palm, with an undergrowth dominantly of saw palmetto, pineland threeawn, and a few scattered gallberry.

(26) Narcoossee fine sand - This somewhat poorly drained soil is on low knolls and ridges in the flatwoods. Individual areas are irregular in shape. Slopes are less than 2 percent.

Typically, the surface layer is very dark gray fine sand about 3 inches thick. The subsurface layer is grayish brown fine sand about 6 inches thick. The subsoil is fine sand about 9 inches thick and a layer of light yellowish brown fine sand, which extends to a depth of 62 inches. From 62 to 75 inches is pale brown fine sand.

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Included with this soil in mapping are small areas of Adamsville and Smyrna soils. Also included are very similar soils which have a second dark-colored sandy subsoil. This second subsoil is commonly at a depth of 75 inches or more. The included soils make up about 20 percent of the map unit.

In most years, under natural conditions, the water table is at a depth of 2 to 3.5 feet for 4 to 6 months. During extended dry periods, the water table recedes to a depth of more than 60 inches. During the wet season, after heavy rains, the water table may briefly rise above a depth of 2 feet. The available water capacity is very low or low. Natural fertility is low. Permeability is rapid in all layers except in the subsoil, which has moderately rapid permeability.

A large part of the acreage of this soil is in natural vegetation of slash pine, longleaf pine, live oak, laurel oak, willow oak, water oak, and an understory of greenbrier, saw palmetto, pineland threeawn, creeping bluestem, lovegrass, and lopsided indiagrass.

(29) Lacoochee complex - This complex consists of Lacoochee fine sandy loam and other similar nearly level, poorly drained soils in low, broad tidal marsh areas. These soils are so intermingled that they can not be separated at the scale selected for mapping. Individual areas of the complex are irregular in shape. Slopes are smooth to concave and range from 0 to 2 percent.

Lacoochee fine sandy loam makes up about 40 to 60 percent of each mapped area. Typically, the surface layer is light brownish gray fine sandy loam about 8 inches thick. It is high in carbonates. The subsurface layer is dark grayish brown loamy fine sand about 3 inches thick. The subsoil is brownish yellow fine sand to a depth of about 18 inches. Below 18 inches is white soft limestone.

About 20 to 40 percent of the complex consists of soils that are similar to the Lacoochee soil except that limestone is at a depth of slightly less than 40 inches. In many places, these similar soils have a loamy subsoil. About 12 percent of the complex consists of soils that are similar to the Lacoochee soil except that they have a surface layer that is not calcareous. About 10 percent of the complex is scattered small areas of Aripeka and Homosassa soils. Limestone boulders are common on the surface.

The water table fluctuates with the tide, and the soil is flooded during normal high tides. The available water capacity is high in the surface layer and medium below. Permeability is moderate in the surface layer and moderately rapid below.

The natural vegetation is seashore saltgrass, needlegrass rush, and gulf cordgrass. Vegetation is commonly sparse.

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(31) Udalfic Arents – Urban land complex – This complex consists of small areas of nearly level Udalfic Arents and Urban land that are so intermingled they can not be separated at the scale used for mapping. The complex is in the western part of the county, near the Gulf of Mexico. Slopes are predominantly 0 to 2 percent, but they are much steeper along canal banks.

About 40 to 50 percent of the complex consists of Udalfic Arents. Udalfic Arents are highly variable within short distances, but one of the more common profiles is mixed black fine sand and dark gray, gray, and brownish yellow sand loam, and sandy clay in the upper 30 inches. The next 15 inches is a mixture of brownish yellow sandy clay loam and black sand containing many fragments of limestone, which range up to 3 inches in diameter. Below this is a layer of grayish brown loamy fine sand 15 inches thick. Below this is a layer of brown sandy loam 11 inches thick. White limestone rock is at a depth of 61 inches.

About 30 to 45 percent of the complex is Urban land, which is covered by shopping centers, parking lots, houses, buildings, streets, sidewalks, and other related structures. Included with this complex in mapping are sanitary landfill sites. The mixed soil materials covering the waste material are Udalfic Arents.

(38) Urban land – In this miscellaneous area, the original soil has been modified through cutting, grading, filling, and shaping for urban development. Major soil properties that originally limited urban uses have been overcome in an acceptable manner. Urban facilities such as paved parking areas, streets, industrial buildings, houses, shopping centers, and underground utilities have been constructed on 75 percent or more of the mapped area. In the places not covered by urban facilities, the soils generally have been so altered that identification is not feasible.

Urban land is primarily in downtown areas, shopping districts, industrial parks, and along main thoroughfares of cities and towns. It is also in isolated shopping centers and small business areas at intersections of primary roads. In places, there are small, less intensively developed areas and small areas of unidentifiable soils.

(39) Chobee soils, frequently flooded - These nearly level, very poorly drained soils are in swamps along the flood plains of most of the major rivers and streams in the county. Most areas of the unit are long and narrow and tend to parallel the streams and rivers. Some large areas lie slightly removed from the streams, but they are connected to the streams by narrow flood channels. The unit consists of Chobee soils and closely similar soils that do not occur in a regular and repeating pattern. One or all of these soils make up about 75 percent of each mapped area. Individual areas of each soil are large enough to map separately in most map units. However, because of inaccessibility and present and predicted use they were not separated in mapping.

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In one of the more typical pedons of Chobee soils, the surface layer is fine sandy loam about 11 inches thick. It is black in the upper 6 inches and very dark gray in the lower part. The subsoil is calcareous and extends to a depth of about 56 inches. In the upper 14 inches it is gray sandy clay loam which has olive brown mottles in the lower part. The substratum, extending from a depth of 56 inches to 80 inches or more, is mixed greenish gray and light greenish gray calcareous sandy clay loam.

Under natural conditions, the water table of the Chobee soils is within 10 inches of the surface for more than 6 months in most years. Flooding occurs frequently during the rainy season. The duration and extent of flooding are variable and are related directly to the intensity and frequency of rainfall. In most years, the lowest lying area and the areas along the streams are flooded during the rainy season. During periods of intense, long-lasting rainfall, nearly all of the area of these soils may be flooded. Flooding normally lasts from 1 to 4 months. Runoff and internal drainage are slow. The available water capacity is medium, and natural fertility is low. Permeability is moderately rapid in the surface layer and slow to very slow in the subsoil.

Some of the soils similar to Chobee soils are on a similar landscape position and are subject to the same flooding. Typically, the surface layer is black loamy fine sand 18 inches thick. Below this, to a depth of 80 inches or more, is very dark gray and light gray sandy loam. These soils have a water table within a depth of 10 inches for more than 6 months during most years. Flooding occurs frequently during the rainy season. The available water capacity is medium in the surface layer and low in the subsoil. Permeability is moderately rapid in the surface layer and moderate in the other layers.

Other soils similar to Chobee soils differ by having limestone at a depth of about 320 inches. These soils are in small areas scattered throughout the map unit but are most significant in the southeastern part of the county. Typically, the surface layer is black and very dark grayish brown fine sand about 10 inches thick. Below this is a layer of dark gray fine sand about 4 inches thick. The subsoil extends from a depth of 14 inches to 30 inches and is light gray sandy clay loam. Hard limestone is at a depth of 30 inches. These similar soils have a water table within a depth of 10 inches for more than 6 months during most years. They are subject to frequent flooding during the rainy season. The available water capacity is medium to low in all layers above the rock. Permeability is rapid in the sandy layers and moderate in the subsoil.

Other soils similar to Chobee soils are slightly less subject to flooding but are still frequently flooded. These similar soils are very slightly elevated on the landscape and are flooded for slightly shorter periods. Typically, the surface layer is black fine sand about 12 inches thick. Below this, and extending to a depth of about 30 inches, is grayish brown fine sand. Next is about 9 inches of dark gray sandy clay loam. Below this and extending to a depth of 80 inches or more is dark gray and gray sandy loam. The water table of these similar soils is at a depth of less than 10 inches for more than 6 months in

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most years. These soils are frequently flooded. The available water capacity is medium in the surface layer, low in the subsurface layer, and medium in the subsoil. Permeability is rapid in the surface and subsurface layers and is moderately slow in the subsoil.

Minor soils make up about 25 percent of the mapped areas. Pineda, Nobleton, and Zephyr soils are scattered throughout most areas but are most significant in the eastern and south-central parts of the county. Okeelanta and Terra Ceia soils are common minor soils west of U.S. Highway 41.

Nearly all the acreage of this map unit remains in natural vegetation of water oak, cypress, elm, ash, hickory, red maple, and sweetgum. The understory vegetation is water-tolerant plants such as maidencane, sawgrass, swamp primrose, buttonbush, smartweed, and sedges.

(47) Weekiwachee muck - This nearly level, very poorly drained organic soil is in the tidal marsh. Individual areas are irregular in shape. Slopes are less than 1 percent.

Typically, the surface is black muck about 31 inches thick. Beneath the muck is dark gray fine sand about 8 inches thick. Below this, to a depth of 44 inches, is white soft limestone surrounding cobbles and boulders of hard limestone. Below a depth of 44 inches is hard limestone that can be chipped but not dug with a spade.

Included with this soil in mapping are small areas of Lacochee and Homosassa soils. The included soils make up about 15 percent of the map unit.

The water table fluctuates with the tide. This soil is flooded during normal daily high tides. The available water capacity is very high in the organic layers and medium in the mineral layers. Natural fertility is high, and permeability is moderately rapid.

The native vegetation is dominantly needlegrass rush, seashore saltgrass, marshhay cordgrass, big cordgrass, and smooth cordgrass.

(55) Homosassa mucky fine sandy loam - This nearly level, very poorly drained soil is in the tidal marsh. Individual areas are irregular to elongated in shape. Slopes are less than 1 percent.

Typically, the surface layer is 16 inches thick. The upper 11 inches is very dark gray mucky fine sandy loam, and the lower 5 inches is very dark grayish brown loamy fine sand. The next layer is grayish brown loamy fine sand 9 inches thick, and below this is a layer of light brownish gray loamy fine sand 3 inches thick. Between depths of 28 and 37 inches is light gray, soft limestone.

Werner-Boyce Salt Springs State Park Soil Descriptions

Included with this soil in mapping are large areas of similar soils that differ mainly by having fine sandy loam or mucky sandy clay loam texture in the surface layer. Also included are small areas of Lacoochee and Weekiwachee soils. The included soils make up about 40 percent of the mapped area.

The water table fluctuates with the tide. The soil is flooded daily during normal high tides. The available water capacity is very high in the surface layer and is medium below. Permeability is moderately rapid to rapid throughout the soil.

The native vegetation is predominantly seashore saltgrass, needlegrass rush, smooth cordgrass, sawgrass, and marshhay cordgrass.

(57) Wabasso Variant fine sand - This nearly level, poorly drained soil is in the flatwoods. Individual areas are relatively long and narrow. Areas of this soil occur in two parts of the county. The largest areas are west of Highway 19. These are rapidly being reduced in extent by mining operations for limestone. The other areas of this soil are in the Withlacoochee State Forest in the northeastern part of the county. Here, delineations are small and scattered. Slopes range from 0 to 2 percent.

Typically, the surface layer is fine sand about 9 inches thick. It is black in the upper 4 inches and dark gray in the lower 5 inches. The subsurface layer is gray fine sand about 7 inches thick. The upper part of the subsoil is fine sand about 10 inches thick. It is dark reddish brown in the upper 3 inches, dark brown in the next 4 inches, and brown in the lower 3 inches. Separating the upper and lower parts of the subsoil is a layer of light yellowish brown fine sand about 3 inches thick. Next is strong brown fine sandy loam to a depth of 35 inches and below that, strong brown sandy clay loam to a depth of about 39 inches. Soft, white limestone is at a depth of 39 inches, and hard limestone is at a depth of about 45 inches. Included with this soil in mapping are similar soils that differ by having a loamy subsoil within 20 inches of the surface. Also included are small areas of Aripeka soils. The included soils make up about 30 percent of the map unit.

In most years, the water table is at a depth of 10 to 40 inches for more than 5 months. It is at a depth of less than 10 inches for less than 45 days in wet seasons, and it is at a depth of more than 40 inches during very dry seasons. Areas of this soil located west of Highway 19 may be covered by water for short periods after severe storms. The available water capacity is very low or low in the surface and subsurface layers and is medium in the subsoil. Permeability is rapid in the surface layer, the subsurface layer, and the layer between the upper and lower parts of the subsoil. It is moderate in the subsoil. Natural fertility is low.

Native vegetation is longleaf pine, slash pine, cabbage palm, and an undergrowth that is dominantly saw palmetto, pineland threeawn, inkberry, lopsided indiagrass, chalky bluestem, creeping bluestem, hairy panicum, and fetterbush lyonia.

Addendum 5 – Plant and Animal List

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
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PTERIDOPHYTES

Giant leather fern	<i>Acrostichum danaeifolium</i>	
Swamp fern	<i>Blechnum serrulatum</i>	
Southern wood fern	<i>Dryopteris ludoviciana</i>	
Japanese climbing fern *	<i>Lygodium japonicum</i>	
Wild Boston fern	<i>Nephrolepis exaltata</i>	
Cinnamon fern	<i>Osmunda cinnamomea</i>	
Royal fern	<i>Osmunda regalis</i> var. <i>spectabilis</i>	
Golden polypoidy	<i>Phlebodium aureum</i>	
Resurrection fern	<i>Pleopeltis polypodioides</i> var. <i>michauxii</i>	
Lacy bracken	<i>Pteridium aquilinum</i> var. <i>caudatum</i>	
Tailed bracken	<i>Pteridium aquilinum</i> var. <i>pseudocaudatum</i>	
Chinese ladder brake *	<i>Pteris vittata</i>	
Hottentot fern	<i>Thelypteris interrupta</i>	
Widespread maiden fern	<i>Thelypteris kunthii</i>	
Ovate marsh fern	<i>Thelypteris ovata</i>	
Marsh fern	<i>Thelypteris palustris</i> var. <i>pubescens</i>	
Shoestring fern	<i>Vittarea lineata</i>	
Virginia chainfern	<i>Woodwardia virginica</i>	

GYMNOSPERMS and CYCADS

Eastern red cedar	<i>Juniperus virginiana</i>	
Sand pine	<i>Pinus clausa</i>	
South Florida slash pine	<i>Pinus elliottii</i>	
Longleaf pine	<i>Pinus palustris</i>	
Bald-cypress	<i>Taxodium distichum</i>	
Coontie	<i>Zamia pumila</i>	

MONOCOTS

Florida bluestem	<i>Andropogon floridanus</i>	
Bushy bluestem	<i>Andropogon glomeratus</i>	
Purple bluestem	<i>Andropogon glomeratus</i> var. <i>glaucopsis</i>	
Bushy bluestem	<i>Andropogon glomeratus</i> var. <i>hirsutior</i>	
Bushy bluestem	<i>Andropogon glomeratus</i> var. <i>pumila</i>	
Broomsedge bluestem	<i>Andropogon virginicus</i>	
Broomsedge blustembluestem	<i>Andropogon virginicus</i> var. <i>decipiens</i>	
Chalky bluestem	<i>Andropogon virginicus</i> var. <i>glaucus</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	
Wiregrass.....	<i>Aristida beyrichiana</i>	
Tall threeawn	<i>Aristida patula</i>	
Hillsborough threeawn	<i>Aristida purpurescens</i> var. <i>tenuispica</i>	
Bottlebrush threeawn	<i>Aristida spiciformis</i>	
Wiregrass.....	<i>Aristida stricta</i> var. <i>beyrichiana</i>	
Giant reed.....	<i>Arundo donax</i>	
Common carpetgrass.....	<i>Axonopus fissifolius</i>	
Capillary hairsedge.....	<i>Bulbostylis ciliatifolia</i>	
Sandyfield hairsedge	<i>Bulbostylis stenophylla</i>	
Golden canna	<i>Canna flaccida</i>	
Sandywoods sedge	<i>Carex dasycarpa</i>	
Long's sedge	<i>Carex longii</i>	
Coastal sandspur.....	<i>Cenchrus incertus</i>	
Coastal sandspur.....	<i>Cenchrus spinifex</i>	
Longleaf woodoata	<i>Chasmanthium laxum</i> var. <i>sessiliflorus</i>	
Sawgrass.....	<i>Cladium jamacience</i>	
Wrinkled jointtail grass.....	<i>Coelorachis rugosa</i>	
Wild taro *	<i>Colocasia esculenta</i>	
Common dayflower *	<i>Commelina diffusa</i>	
String-lily.....	<i>Crinum americanum</i>	
Bermuda grass *	<i>Cynodon dactylon</i>	
Poorland flatsedge	<i>Cyperus compressus</i>	
Chufa flatsedge *	<i>Cyperus esculentus</i>	
Haspan flatsedge.....	<i>Cyperus haspan</i>	
Umbrella flatsedge*	<i>Cyperus involucratus</i>	
Fragrant flatsedge	<i>Cyperus odoratus</i>	
Manyspike flatsedge.....	<i>Cyperus polystachyus</i>	
Nutgrass *	<i>Cyperus rotundus</i>	
Tropical flatsedge.....	<i>Cyperis surinamensis</i>	
Needle leaf witchgrass	<i>Dichantherium aciculare</i>	
Variable witchgrass	<i>Dicantherium commutatum</i>	
Cypress witchgrass.....	<i>Dichantherium dichotomum</i>	
Witchgrass.....	<i>Dicantherium ensifolium</i>	
Cypress witchgrass.....	<i>Dicantherium ensifolium</i> var. <i>uncipyllum</i>	
Rough-hair witchgrass	<i>Dichantherium strigosum</i> var. <i>glabrescens</i>	
Asia crabgrass *	<i>Digitaria bicornis</i>	
Southern crabgrass.....	<i>Digitaria ciliaris</i>	
Slender crabgrass	<i>Digitaria filiformis</i>	
Air-potato *	<i>Dioscorea bulbifera</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Saltgrass.....	<i>Distichlis spicata</i>	
Jungle rice *	<i>Echinichloa colona</i>	
Coastal cockspur	<i>Echinochloa walteri</i>	
Water hyacinth *	<i>Eichhornia crassipes</i>	
Gulfcoast spikerush	<i>Eleocharis cellulosa</i>	
Yellow spikerush.....	<i>Eleocharis flavescens</i>	
Canada spikerush	<i>Eleocharis geniculata</i>	
Pan-american balsamscale *	<i>Elionurus tripsacoides</i>	
Tampa butterfly orchid	<i>Encyclia tampensis</i>	
Green fly orchid.....	<i>Epidendrum magnoliae</i>	
Red lovegrass.....	<i>Eragrostis secundiflora</i> subsp. <i>oxylepis</i>	
Purple lovegrass.....	<i>Eragrostis spectabilis</i>	
Coastal lovegrass.....	<i>Eragrostis virginica</i>	
Michaux's cupgrass	<i>Eriochloa michauxii</i>	
Saltmarsh fingergrass	<i>Eustachys glauca</i>	
Pinewoods fingergrass	<i>Eustachys petraea</i>	
Slender fimbry	<i>Fimbristylis autumnalis</i>	
Forked fimbry	<i>Fimbristylis dichotoma</i>	
Ditch fimbry *	<i>Fimbristylis schoenoides</i>	
Marsh fimbry	<i>Fimbristylis spadicea</i>	
Saltmarsh umbrellasedge.....	<i>Fuirena breviseta</i>	
Toothpetal false reinorchid.....	<i>Habenaria floribunda</i>	
Shoalgrass.....	<i>Halodule wrightii</i>	
Handgrass	<i>Halophila engelmannii</i>	
Georgia spiderlily	<i>Hymenocallis crassifolia</i>	
Hydrilla *	<i>Hydrilla verticillata</i>	
Fringed yellow stargrass.....	<i>Hypoxis juncea</i>	
Cogon grass *	<i>Imperata cylindrica</i>	
Blueflag iris	<i>Iris hexagona</i>	
Soft rush.....	<i>Juncus effusus</i> subsp. <i>solutus</i>	
Grassleaf rush	<i>Juncus marginatus</i>	
Bighead rush	<i>Juncus megacephalus</i>	
Manyhead rush	<i>Juncus polycephalos</i>	
Needle rush; Black rush	<i>Juncus roemerianus</i>	
Whitehead bogbutton.....	<i>Lachnocaulon anceps</i>	
Dotted duckweed *	<i>Landoltia punctata</i>	
Southern cutgrass.....	<i>Leersia hexandra</i>	
Valdivia duckweed	<i>Lemna valdiviana</i>	
Bearded spangletop	<i>Leptochloa fusca</i> subsp. <i>fasicularis</i>	
Pine lily	<i>Lilium catesbaei</i>	MF

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Natalgrass.....	<i>Melinis repens</i>	
Smallflower chaffhead.....	<i>Lipocarpa micrantha</i>	
Shoregrass; Keygrass.....	<i>Monanthochloe littoralis</i>	
Muhly grass.....	<i>Muhlenbergia capillaris</i>	
Nakedstem dewflower *.....	<i>Murdannia nudiflora</i>	
Banana *.....	<i>Musa xparadisica</i>	
Woodsgrass.....	<i>Oplismenus hirtellus</i>	
Beaked panicum.....	<i>Panicum anceps</i>	
Fall panicum.....	<i>Panicum dichotomiflorum</i>	
Fall panicum.....	<i>Panicum dichotomiflorum</i> var. <i>barowense</i>	
Guinea grass*.....	<i>Panicum maximum</i>	
Torpedo grass *.....	<i>Panicum repens</i>	
Redtop panicum.....	<i>Panicum rigidulum</i>	
Switchgrass.....	<i>Panicum virgatum</i>	
Florida Paspalum.....	<i>Paspalum floridanum</i>	
Brownseed Paspalum.....	<i>Paspalum plicatulum</i>	
Thin Paspalum.....	<i>Paspalum setaceum</i>	
Vaseygrass *.....	<i>Paspalum uroillei</i>	
Seashore paspalum.....	<i>Paspalum vaginatum</i>	
Green arrow arum.....	<i>Peltandra virginica</i>	
Common reed.....	<i>Phragmites australis</i>	
Water lettuce *.....	<i>Pistia stratiotes</i>	
Hairy shadow witch.....	<i>Ponthieva racemosa</i>	
Starrush whitetop.....	<i>Rhynchospora colorata</i>	
Spreading beaksedge.....	<i>Rhynchospora divergens</i>	
Fascilced beaksedge.....	<i>Rhynchospora fascicularis</i>	
Globe beaksedge.....	<i>Rhynchospora globularis</i>	
Sandyfields beaksedge.....	<i>Rhynchospora megalocarpa</i>	
Millet beaksedge.....	<i>Rhynchospora miliacea</i>	
Fragrant beaksedge.....	<i>Rhynchospora odorata</i>	
Plumed beaksedge.....	<i>Rhynchospora plumosa</i>	
Fewflower beaksedge.....	<i>Rhynchospora rariflora</i>	
Widgeon grass.....	<i>Ruppia maritima</i>	
Cabbage palm.....	<i>Sabal palmetto</i>	
Sugarcane plumegrass.....	<i>Saccharum giganteum</i>	
Bulltongue arrowhead.....	<i>Sagittaria lancifolia</i>	
Little bluestem.....	<i>Schizachyrium scoparium</i>	
Black bogrush; Black sedge.....	<i>Schoenus nigricans</i>	
Bulrush.....	<i>Scirpus validus</i>	
Saltmarsh bulrush.....	<i>Scirpus bulrush</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Fringed nutrush.....	<i>Scleria ciliata</i>	
Tall nutgrass	<i>Scleria triglomerata</i>	
Saw palmetto	<i>Serenoa repens</i>	
Coastal foxtail	<i>Setaria corrugata</i>	
Giant bristlegrass	<i>Setaria magna</i>	
Knotroot foxtail	<i>Setaria parviflora</i>	
Narrowleaf blueeyed grass.....	<i>Sisyrinchium angustifolium</i>	
Annual blue-eyed grass	<i>Sisyrinchium rosulatum</i>	
Ear-leaf greenbrier	<i>Smilax auriculata</i>	
Saw greenbrier.....	<i>Smilax bona-nox</i>	
Cat greenbrier.....	<i>Smilax glauca</i>	
Sarsaparilla vine	<i>Smilax pumila</i>	
Yellow indiagrass	<i>Sorghastrum nutans</i>	
Lopsided indiagrass	<i>Sorghastrum secundum</i>	
Johnsongrass *	<i>Sorghum halapense</i>	
Smooth cordgrass.....	<i>Spartina alterniflora</i>	
Sand cordgrass	<i>Spartina bakeri</i>	
Marshhay cordgrass	<i>Spartina patens</i>	
Marshhay cordgrass	<i>Spartina spartinae</i>	
Fragrant ladies'-tresses	<i>Spiranthes odorata</i>	
Green-vein ladies'-tresses	<i>Spiranthes praecox</i>	
Spring ladies'-tresses	<i>Spiranthes vernalis</i>	
Common duckweed	<i>Spirodela polyrhiza</i>	
Coral dropseed	<i>Sporobolus domingensis</i>	
Smut grass *	<i>Sporobolus indicus</i>	
Seashore dropseed	<i>Sporobolus virginicus</i>	
St. Augustine grass	<i>Stenotaphrum secundatum</i>	
Manateegrass	<i>Syringodium filiforme</i>	
Turtle grass	<i>Thalassia testudinum</i>	
Bartram's airplant.....	<i>Tillandsia bartramii</i>	
Ball moss.....	<i>Tillandsia recurvata</i>	
Florida airplant.....	<i>Tillandsia simulata</i>	
Spanish moss	<i>Tillandsia usneoides</i>	
Giant airplant.....	<i>Tillandsia utriculata</i>	MAH, HH
Tall redtop.....	<i>Tridens flavus</i>	
Eastern gamagrass	<i>Tripsacum dactyloides</i>	
Southern cattail.....	<i>Typha domingensis</i>	
Broadleaf cattail.....	<i>Typha latifolia</i>	
Browntop millet *	<i>Urochloa ramosa</i>	
Short-leaf yellow-eyed grass	<i>Xyris brevifolia</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for imperiled species)
Carolina yellow-eyed grass	<i>Xyris caroliniana</i>	
Richard's yellow-eyed grass *	<i>Xyris jupicai</i>	
Spanish bayonet; Aloe yucca.....	<i>Yucca aloifolia</i>	
Adam's needle	<i>Yucca filamentosa</i>	
Soldier's orchid *	<i>Zeuxine strateumatica</i>	
Elephant ear*.....	<i>Xanthosoma sagittifolium</i>	

DICOTS

Rosary pea *	<i>Abrus precatorius</i>	
Mauve *	<i>Abutilon hulseanum</i>	
Pineland acacia	<i>Acacia pinetorum</i>	
Slender copperleaf	<i>Acalypha gracilens</i>	
Red maple	<i>Acer rubrum</i>	
Creeping sunflower	<i>Acmella oppositifolia</i> var. <i>repens</i>	
Shyleaf	<i>Aeschynomene americana</i>	
Beach false foxglove.....	<i>Agalinis fasciculata</i>	
Saltmarsh false foxglove	<i>Agalinis maritima</i>	
Hammock snakeroot.....	<i>Ageratina jucunda</i>	
Saltmarsh foxglove	<i>Agalinus maritima</i>	
Mimosa	<i>Albizia julibrissin</i>	
Yellow joyweed	<i>Alternanthera flavescens</i>	
Alligatorweed *	<i>Alternanthera philoxeroides</i>	
False moneywort *	<i>Alysicarpus ovalifolius</i>	
Southern amaranth	<i>Amaranthus australis</i>	
Spiny amaranth	<i>Amaranthus spinosus</i>	
Common Ragweed	<i>Ambrosia artemisifolia</i>	
Toothcup	<i>Ammannia latifolia</i>	
False indigobush	<i>Amorpha fruticosa</i>	
Pepper vine	<i>Ampelopsis arborea</i>	
Groundnut	<i>Apios americana</i>	
Marlberry	<i>Ardisia escallonioides</i>	
Few-flower milkweed	<i>Asclepias lanceolata</i>	
Butterflyweed	<i>Asclepias tuberosa</i>	
Bigleaf pawpaw.....	<i>Asimina obovata</i>	
Dwarf pawpaw.....	<i>Asimia pygmaea</i>	
Netted pawpaw.....	<i>Asimina reticulata</i>	
Saltmarsh aster	<i>Aster subulatus</i>	
Fern-leaf yellow false foxglove	<i>Aureolaris pedicularia</i> var. <i>pectinata</i>	
Black mangrove.....	<i>Avicennia germinans</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Saltwater false-willow	<i>Baccharis angustifolia</i>	
Silverling	<i>Baccharis glomeruliflora</i>	
Salt Myrtle; Saltbush; Groundsel ..	<i>Baccharis halimifolia</i>	
Herb-of-grace	<i>Bacopa monnieri</i>	
Saltwort	<i>Batis maritima</i>	
Tarflower	<i>Bejaria racemosa</i>	
Rattan vine	<i>Berchemia scandens</i>	
Beggar tick	<i>Bidens alba</i> var. <i>radiata</i>	
False nettle	<i>Boehmeria cylindrica</i>	
Oxeye daisy	<i>Borrchia frutescens</i>	
Paper mulberry *	<i>Broussonetia papyrifera</i>	
American bluehearts	<i>Buchnera americana</i>	
American beautyberry	<i>Callicarpa americana</i>	
Trumpet creeper	<i>Campsis radicans</i>	
Papaya	<i>Carica papaya</i>	
Florida paintbrush	<i>Carphephorus corymbosus</i>	
False vanillaleaf	<i>Carphephorus corymbosus</i> var. <i>subtropicanus</i>	
Pignut hickory	<i>Carya glabra</i>	
Australian pine *	<i>Casuarina equisetifolia</i>	
Sugarberry	<i>Celtis laevigata</i>	
Coinwort	<i>Centella asiatica</i>	
Spurred butterfly pea	<i>Centrosema virginianum</i>	
Buttonbush	<i>Cephalanthes occidentalis</i>	
Sensitive pea	<i>Chamaecrista nictitans</i> var. <i>aspera</i>	
Pillpod sandmat	<i>Chamaesyce hirta</i>	
Spotted sandmat	<i>Chamaesyce maculata</i>	
Coastal beach sandmat	<i>Chamaesyce mesembrianthemifolia</i>	
Snowberry	<i>Chiococca alba</i>	
Maryland goldenaster	<i>Chrysopsis mariana</i>	
Water hemlock	<i>Cicuta maculata</i>	
Camphortree *	<i>Cinnamomum camphora</i>	
Yellow thistle	<i>Cirsium horridulum</i>	
Nuttall's thistle	<i>Cirsium nuttallii</i>	
Sorrel vine	<i>Cissus trifoliata</i>	
Sour orange *	<i>Citrus xaurantium</i>	
Pine-hyacinth	<i>Clematis baldwinii</i>	
Buttonwood	<i>Conocarpus erectus</i>	
Dwarf Canadian horseweed	<i>Conyza canadensis</i> var. <i>pusilla</i>	
Swamp dogwood	<i>Cornus foemina</i>	
String lily	<i>Crinum americanum</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Lanceleaf rattlebox *	<i>Crotalaria lanceolata</i>	
Pale rattlebox *	<i>Crotalaria pallida</i> var. <i>obovata</i>	
Rabbitbells	<i>Crotalaria rotundifolia</i>	
Showy rattlebox *	<i>Crotalaria spectabilis</i>	
Fiveangled dodder	<i>Cuscuta pentagona</i>	
Gulfcoast swallowwort	<i>Cynanchum angustifolium</i>	
Marsh parsley *	<i>Cyclosporum leptophyllum</i>	
Whitetassels	<i>Dalea carnea</i>	
Western tansymustard	<i>Descurainia pinnata</i>	
Wild tantan	<i>Demanthus virgatus</i>	
Dixie ticktrefoil *	<i>Desmodium tortuosum</i>	
Carolina ponysfoot	<i>Dichondra caroliniensis</i>	
Poor Joe	<i>Diodia teres</i>	
Persimmon	<i>Diospyros virginiana</i>	
Dwarf sundew	<i>Drosera brevifolia</i>	
False daisy	<i>Eclipta prostrata</i>	
Florida elephant's foot	<i>Elephantopus elatus</i>	
Florida tasselflower *	<i>Emilia fosbergii</i>	
Lilax tasselflower *	<i>Emilia sonchifolia</i>	
Earpod tree*	<i>Enterolobium contortisiliquum</i>	
Oakleaf fleabane	<i>Erigeron quercifolius</i>	
Early whitetop fleabane	<i>Erigeron vernus</i>	
Rattlesnake master	<i>Eryngium yuccafolium</i>	
Coralbean	<i>Erythrina herbacea</i>	
White stopper	<i>Eugenia axillaris</i>	
Dog fennel	<i>Eupatorium capillifolium</i>	
Semaphore thoroughwort	<i>Eupatorium mikanioides</i>	
Mohr's thoroughwort	<i>Eupatorium mohrii</i>	
Falsehorehound	<i>Eupatorium rotundifolium</i>	
Lateflowering thoroughwort	<i>Eupatorium serotinum</i>	
Marsh gentian; Seaside gentian	<i>Eustoma exaltatum</i>	
Slender flattopped goldenrod	<i>Euthamia caroliniana</i>	
Flattop goldenrod	<i>Euthamia graminifolia</i> var. <i>hirtipes</i>	
Florida yellowtops	<i>Flaveria floridana</i>	
Narrowleaf yellowtops	<i>Flaveria linearis</i>	
Upland swampprivet	<i>Forestiera ligustrina</i>	
Florida swampprivet	<i>Forestiera segregate</i>	
Green ash	<i>Fraxinus pennsylvanica</i>	
Drug fumitory *	<i>Fumaria officinalis</i>	
Indian blanketflower	<i>Gaillardia pulchella</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Elliott's milkpea	<i>Galactia elliotii</i>	
Stiff marsh bedstraw	<i>Galium tinctorium</i>	
Pennsylvania everlasting	<i>Gamochaeta pensylvanica</i>	
Garberia	<i>Garberia heterophylla</i>	SCF
Southern beeblossom.....	<i>Gaura angustifolia</i>	
Blue huckleberry	<i>Gaylussacia frondosa</i> var. <i>tomentosa</i>	
Yellow Jessamine.....	<i>Gelsemium sempervirens</i>	
Wild geranium.....	<i>Geranium carolinianum</i>	
Tampa vervain.....	<i>Glandularia tampensis</i>	MF, MAH
Angularfruit milkvine	<i>Gonolobus suberosus</i>	HH
Loblolly-bay	<i>Gordonia lasianthus</i>	
Rough hedge-hyssop	<i>Gratiola hispida</i>	
Narrowleaf sunflower	<i>Helenianthus angustifolia</i>	
Sneezeweed.....	<i>Helenium amarum</i>	
Southeastern sneezeweed	<i>Helenium pinnatifidum</i>	
Pinebarren frostweed	<i>Helianthemum corymbosum</i>	
Seaside heliotrope	<i>Heliotropium curassavicum</i>	
Narrowleaf sunflower	<i>Helianthus angustifolius</i>	
Camphorweed	<i>Heterotheca subaxillaris</i>	
Hawkweed	<i>Hieracium gronovii</i>	
Round-leaf bluet.....	<i>Houstonia procumbens</i>	
Water pennywort	<i>Hydrocotyle bonariensis</i>	
Manyflower marshpennywort	<i>Hydrocotyle umbellate</i>	
Coastalplain St. John's-wort	<i>Hypericum brachyphyllum</i>	
Roundpod St. John's-wort	<i>Hypericum cistifolium</i>	
Pineweed	<i>Hypericum gentianoides</i>	
St. Andrew's-cross.....	<i>Hypericum hypericoides</i>	
Four-petaled St. John's wort	<i>Hypericum tetrapetalum</i>	
Musky mint.....	<i>Hyptis alata</i>	
Carolina holly	<i>Ilex ambigua</i>	
Dahoon holly	<i>Ilex cassine</i>	
Gallberry.....	<i>Ilex glabra</i>	
Yaupon holly	<i>Ilex vomitoria</i>	
Hairy indigo *	<i>Indigofera hirsuta</i>	
Tievine	<i>Ipomoea cordatriloba</i>	
Scarlet creeper.....	<i>Ipomoea hederifolia</i>	
Largeroot morning glory	<i>Ipomoea macrorhiza</i>	
Man-of-the-earth	<i>Ipomoea pandurata</i>	
Salt marsh morning glory	<i>Ipomoea sagittata</i>	
Little bell.....	<i>Ipomoea triloba</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Saltmarsh morning glory	<i>Ipomoea sagittata</i>	
Virginia willow.....	<i>Itea virginica</i>	
Bigleaf sumpweed; Marsh elder ...	<i>Iva frutescens</i>	
Piedmont marsh elder	<i>Iva microcephala</i>	
Brazilian jasmine*.....	<i>Jasminum fluminse</i>	
Southern red cedar.....	<i>Juniperus virginiana</i>	
Virginia saltmarsh mallow	<i>Kosteletzkya virginica</i>	
White mangrove.....	<i>Lagnuncularia racemosa</i>	
Lantana; Shrub verbena *	<i>Lantana camara</i>	
Piedmont pinweed.....	<i>Lechea torreyi</i>	
Virginia pepperweed.....	<i>Lepidium virginicum</i>	
White leadtree *	<i>Leucanea leucocephala</i>	
Slender blazing star	<i>Liatris gracilis</i>	
Shortleaf blazing star	<i>Liatris tenuifolia</i> var. <i>quadriflora</i>	
Gopher apple	<i>Licania michauxii</i>	
Eastern grasswort.....	<i>Lilaeopsis chinensis</i>	
Carolina sealavendar	<i>Limonium carolinianum</i>	
Canadian toadflax.....	<i>Linaria canadensis</i>	
Malaysian false pimpernel *	<i>Lindernia crustacea</i>	
Stiff yellowflax.....	<i>Linum medium</i> var. <i>teanum</i>	
Bay lobelia	<i>Lobelia feayana</i>	
Glade lobelia	<i>Lobelia glandulosa</i>	
Coral honeysuckle.....	<i>Lonicera sempervirens</i>	
Winged primrose-willow	<i>Ludwigia alata</i>	
Curtiss' primrose-willow	<i>Ludwigia curtissii</i>	
Lanceleaf primrosewillow	<i>Ludwigia lanceolata</i>	
Seaside primrosewillow	<i>Ludwigia maritima</i>	
Ludwigia microcarpa	<i>Ludwigia microcarpa</i>	
Mexican primrose-willow	<i>Ludwigia octovalvis</i>	
Peruvian primrose-willow *	<i>Ludwigia peruviana</i>	
Creeping primrose-willow	<i>Ludwigia repens</i>	
Christmas berry	<i>Lycium carolinianum</i>	
Rusty lyonia	<i>Lyonia ferruginea</i>	
Coastalplain staggerbush.....	<i>Lyonia fruticosa</i>	
Fetterbush.....	<i>Lyonia lucida</i>	
Wand loosestrife.....	<i>Lythrum lineare</i>	
Wild bushbean *	<i>Macroptilium lathyroides</i>	
Southern magnolia.....	<i>Magnolia grandifolia</i>	
Sweetbay.....	<i>Magnolia virginiana</i>	
Turk's cap mallow *	<i>Malvaaviscus penduliflorus</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Florida mayten	<i>Maytenus phyllanthoides</i>	SAM
Black medic *	<i>Medicago lupulina</i>	
Burr clover *	<i>Medicago polymorpha</i>	
Melaleuca*	<i>Melaleuca quinquenervia</i>	
Chinaberry tree *	<i>Melia azedarach</i>	
White sweet clover *	<i>Melilotus albus</i>	
Indian sweetclover *	<i>Melilotus indicus</i>	
Snow squarestem	<i>Melanthera nivea</i>	
Chocolate-weed *	<i>Melochia corchorifolia</i>	
Creeping cucumber.....	<i>Melothria pendula</i>	
Climbing hempvine	<i>Mikania scandens</i>	
Lax hornpod.....	<i>Mitreola petiolata</i>	
Swamp hornpod.....	<i>Mitreola sessiliflora</i>	
Red mulberry	<i>Morus rubra</i>	
Waxmyrtle.....	<i>Myrica cerifera</i>	
Yellow wood-sorrel	<i>Oxalis corniculata</i>	
Pink wood-sorrel.....	<i>Oxalis debilis</i> var. <i>corymbosa</i>	
Tropical puff	<i>Neptunia pubescens</i>	
Oleander *	<i>Nerium oleander</i>	
Swamp tupelo.....	<i>Nyssa sylvatica</i> var. <i>biflora</i>	
Sea beach evening primrose	<i>Oenothera humifusa</i>	
Clustered mille grains	<i>Oldenlandia uniflora</i>	
Prickly pear	<i>Opuntia humifusa</i>	
Erect prickly pear	<i>Opuntia stricta</i>	MF, SAM
Scrub wild olive.....	<i>Osmanthus megacarpus</i>	
Yellow wood sorrel.....	<i>Oxalis stricta</i>	
Water cowbane	<i>Oxypolis filiformis</i>	
Florida pellitory.....	<i>Parietaria floridana</i>	
Clustered pellitory	<i>Parietaria praetermissa</i>	
Muscadine	<i>Parthenocissus quinquefolia</i>	
Purple passionflower.....	<i>Passiflora incarnata</i>	
Yellow passionflower	<i>Passiflora lutea</i>	
Corkystem passionflower	<i>Passiflora suberosa</i>	
Spreading cinchweed	<i>Pectis prostrata</i>	
Hale's pentodon	<i>Pentodon pentandrus</i>	
Swampbay.....	<i>Persea palustris</i>	
Mistletoe	<i>Phorodendron leucarpum</i>	
Cutleaf ground-cherry.....	<i>Physalis angulata</i>	
Walter's ground-cherry	<i>Physalis walteri</i>	
Pokeweed; Pokeberry	<i>Phytolacca americana</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Pitted stripeseed	<i>Piriqueta cistoides</i> subsp. <i>caroliniana</i>	
Narrowleaf goldenaster	<i>Pityopsis graminifolia</i>	
Yellow butterwort	<i>Pinguicula lutea</i>	
Small butterwort	<i>Pinguicula pumila</i>	
Common plantain	<i>Plantago major</i>	
Virginia plantain	<i>Plantago virginica</i>	
Camphorweed	<i>Pluchea camphorata</i>	
Sweetscent	<i>Pluchea odorata</i>	
Rosy camphorweed	<i>Pluchea rosea</i>	
Painted leaf.....	<i>Poinsettia cyathophora</i>	
Baldwin's milkwort	<i>Polygala balduinii</i>	
Boykin's milkwort	<i>Polygala boykinii</i>	
Procession flower	<i>Polygala incarnata</i>	
Orange milkwort.....	<i>Polygala lutea</i>	
Dwarf bachelor's buttons	<i>Polygala nana</i>	
Racemed milkwort.....	<i>Polygala polygama</i>	
Coastal plain milkwort.....	<i>Polygala setacea</i>	
Showy milkwort.....	<i>Polygala violacea</i>	
Swamp smartweed	<i>Polygonum hydropiperoides</i>	
Dotted smartweed.....	<i>Polygonum punctatum</i>	
Rustweed.....	<i>Polypremum procumbens</i>	
Purslane *	<i>Portulaca oleracea</i>	
Pink purslane	<i>Portulaca pilosa</i>	
Pouzolz's bush.....	<i>Pouzolz's bush</i>	
Wild coffee	<i>Psychotria nervosa</i>	
Blackroot.....	<i>Pterocaulon pycnostachyum</i>	
Mock bishopweed	<i>Ptilimnium capillaceum</i>	
Carolina desert chicory	<i>Pyrrhopappus carolinianus</i>	
Chapman's oak	<i>Quercus chapmanii</i>	
Running oak.....	<i>Quercus elliotii</i>	
Sand live oak.....	<i>Quercus geminata</i>	
Turkey oak	<i>Quercus laevis</i>	
Laurel oak; Diamond oak	<i>Quercus laurifolia</i>	
Dwarf live oak	<i>Quercus minima</i>	
Myrtle oak	<i>Quercus myrtifolia</i>	
Live oak	<i>Quercus virginiana</i>	
Myrsine.....	<i>Rapanaea punctata</i>	
Camphordaisy	<i>Rayjacksonia phyllocephalla</i>	
Red mangrove	<i>Rhizophora mangle</i>	
Winged sumac	<i>Rhus copallinum</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Michaux's snoutbean.....	<i>Rhynchosia michauxii</i>	
Least snoutbean.....	<i>Rhynchosia minima</i>	
Tropical Mexican clover *	<i>Richardia brasiliensis</i>	
Castorbean *	<i>Ricinus communis</i>	
Sawtooth blackberry	<i>Rubus argutus</i>	
Southern dewberry	<i>Rubus trivalis</i>	
Blackeyed Susan.....	<i>Rudbeckia hirta</i>	
Carolina wild petunia.....	<i>Ruellia carolinensis</i>	
Swamp dock.....	<i>Rumex verticillatus</i>	
Shortleaf rosegentian	<i>Sabatia brevifolia</i>	
Coastal rosegentian.....	<i>Sabatia calycina</i>	
Annual glasswort.....	<i>Salicornia bigelovii</i>	
Chinese tallowtree*	<i>Sapium sebiferum</i>	
Glasswort	<i>Sarcocornia perrenis</i>	
Carolina willow	<i>Salix caroliniana</i>	
Southern river sage	<i>Salvia misella</i>	
Elderberry	<i>Sambucus nigra</i> subsp. <i>canadensis</i>	
Water pimpernel	<i>Samolus ebracteatus</i>	
Pineland pimpernel	<i>Samolus valerandi</i> subsp. <i>parviflorus</i>	
Small-flower mock-buckthorn	<i>Sageretia minutiflora</i>	
Brazilian pepper *	<i>Schinus terebinthifolius</i>	
Whitetop aster	<i>Sericocarpus tortifolius</i>	
Wild senna	<i>Senna ligustrina</i>	
Danglepod.....	<i>Sesbania herbacea</i>	
Bladderpod	<i>Sesbania vesicaria</i>	
Seapurslane	<i>Sesuvium portulacastrum</i>	
Piedmont black senna.....	<i>Seymeria pectinata</i>	
Llima	<i>Sida cordifolia</i>	
Indian hemp.....	<i>Sida rhombifolia</i>	
Moth fan petals *	<i>Sida santamarensis</i>	
Prickly fan petals *	<i>Sida spinosa</i>	
Saffron plum	<i>Sideroxylon celastrinum</i>	
Florida bully.....	<i>Sideroxylon reclinatum</i>	
Hairy leafcup	<i>Smallanthus uvedalia</i>	
Common nightshade	<i>Solanum americanum</i>	
Black nightshade	<i>Solanum chenopodioides</i>	
Tropical soda apple *	<i>Solanum viarum</i>	
Pinebarren goldenrod.....	<i>Solidago fistulosa</i>	
Chapman's goldenrod.....	<i>Solidago odora</i> var. <i>champanii</i>	
Seaside goldenrod.....	<i>Solidago sempervirens</i>	

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Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Spiny sowthistle *	<i>Sonchus asper</i>	
Common sowthistle *	<i>Sonchus oleraceus</i>	
Yellow necklace pod	<i>Sophora tomentosa</i> var. <i>truncata</i>	
Prostrate false buttonweed	<i>Spermacoce prostrata</i>	
Creeping oxeye *	<i>Sphagneticola trilobata</i>	
Florida hedgenettle	<i>Stachys floridana</i>	
Queensdelight	<i>Stillingia aquatica</i>	
Seablite	<i>Suaeda linearis</i>	
Scaleleaf aster	<i>Symphotrichum adnatum</i>	
Climbing aster	<i>Symphotrichum carolinianum</i>	
Florida water aster	<i>Symphotrichum fontinale</i>	
Annual saltmarsh aster	<i>Symphotrichum subulatum</i>	
Wavyleaf aster	<i>Symphotrichum undulatum</i>	
Common dandelion *	<i>Taraxacum officinale</i>	
Woodsage	<i>Teucrium canadense</i>	
Bristleaf *	<i>Thymophylla tenuiloba</i>	
Poison ivy	<i>Toxicodendron radicans</i>	
Forked bluecurls	<i>Trichostoma dichotoma</i>	
Coatbuttons *	<i>Tridax procumbens</i>	
Turnera ulmifolia *	Yellow alder	
American elm	<i>Ulmus americana</i>	
Caesarweed *	<i>Urena lobata</i>	
Little floating bladderwort	<i>Utricularia radiata</i>	
Zigzag bladderwort	<i>Utricularia subulata</i>	
Sparkleberry	<i>Vaccinium arboretum</i>	
Highbush blueberry	<i>Vaccinium corymbosum</i>	
Darrow's blueberry	<i>Vaccinium darrowii</i>	
Shiny blueberry	<i>Vaccinium myrsinites</i>	
Deerberry	<i>Vaccinium stamineum</i>	
Brazilian vervain *	<i>Verbena brasiliensis</i>	
Sandpaper vervain	<i>Verbena scabra</i>	
Frostweed	<i>Verbesina virginica</i>	
Giant ironweed	<i>Vernonia gigantea</i>	
Walter's viburnum	<i>Viburnum obovatum</i>	
Hairy pod cowpea	<i>Vigna luteola</i>	
Common blue violet	<i>Viola sororia</i>	
Summer grape	<i>Vitis aestivalis</i>	
Florida grape	<i>Vitis cinerea</i> var. <i>floridana</i>	
Virginia creeper	<i>Vitis rotundifolia</i>	
Southern rockbell *	<i>Wahlenbergia marginata</i>	

* Non-native Species

Werner-Boyce Salt Springs State Park Plants

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Hog plum	<i>Ximenia americana</i>	
Oriental false hawks-beard *	<i>Youngia japonica</i>	
Hercules-club.....	<i>Zanthoxylum clava-hercules</i>	
Wild lime	<i>Zanthoxylum fagara</i>	

Werner-Boyce Salt Springs State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
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FISH

Sheepshead	<i>Archosargus probatocephalus</i>	EUS
Crevalle jack.....	<i>Caranx hippos</i>	MUS
Common snook	<i>Centropomus undecimalis</i>	MUS
Chain pickerel.....	<i>Esox niger</i>	MUS
Gold spotted killfish	<i>Floridichthys carpio</i>	EUS, SRST
White grunt.....	<i>Haemulon plumieri</i>	EUS
Pinfish.....	<i>Lagodon rhomboids</i>	EUS, ESGB
Bluegill.....	<i>Lepomis macrochirus</i>	SRST
Rainwater killfish.....	<i>Lucania parva</i>	EUS, SRST
Mutton snapper.....	<i>Lutjanus analis</i>	MUS
Red snapper	<i>Lutjanus campechanus</i>	MUS
Tarpon.....	<i>Megalops atlanticus</i>	MUS
Largemouth bass.....	<i>Micropterus salmoides</i>	SRST, ALT
Striped mullet.....	<i>Mugil cephalus</i>	EUS, SRST, ESGB
Sailfin molly	<i>Poecilia latipinna</i>	EUS, SRST
Black drum.....	<i>Pogonias cromis</i>	MUS
Cobia	<i>Rachycentron canadum</i>	MUS
Red drum.....	<i>Scianops ocellata</i>	EUS
Spanish mackerel	<i>Scomberomorus maculatus</i>	MUS
Greater amberjack.....	<i>Seriola dumerili</i>	MUS
Needlefish spp.....	<i>Strongylura</i> sp.....	EUS, SRST
Permit.....	<i>Trachinotus falcatus</i>	MUS

AMPHIBIANS

Oak toad	<i>Anaxyrus quercicus</i>	MF
Southern toad	<i>Anaxyrus terrestris</i>	MF, DM
Bullfrog.....	<i>Lithobates catesbeianus</i>	DM
Florida leopard frog.....	<i>Lithobates sphenoccephalus</i>	DM
Greater siren	<i>Siren intermedia</i>	HH

REPTILES

Florida cottonmouth.....	<i>Agkistrodon piscivorus conanti</i>	HH
American alligator	<i>Alligator mississippiensis</i>	SAM, MLK
Green anole	<i>Anolis carolinensis carolinensis</i>	MF
Cuban brown anole*	<i>Anolis sagrei sagrei</i>	MTC
Florida scarlet snake	<i>Cemophora coccinea coccinea</i>	SFW

* Non-native Species

Werner-Boyce Salt Springs State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Florida snapping turtle.....	<i>Chelydra serpentine osceola</i>	DM, SRST
Southern black racer	<i>Coluber constrictor priapus</i>	MTC
Eastern diamondback rattlesnake	<i>Crotalus adamanteus</i>	MF
Southern ringneck snake.....	<i>Diadophis punctatus punctatus</i>	MF
Red cornsnake	<i>Pantherophis guttatus</i>	MTC
Eastern ratsnake	<i>Pantherophis alleghaniensis</i>	MTC
Eastern mud snake.....	<i>Farancia abacura abacura</i>	DM
Gopher tortoise.....	<i>Gopherus polyphemus</i>	MF, SCF
Southern hognose snake	<i>Heterodon simus</i>	MF, SCF
Striped mud turtle.....	<i>Kinosternon bauri palmarum</i>	DV, BG
Eastern diamondback terrapin.....	<i>Malaclemys terrapin</i>	ESGB
Ornate diamondback terrapin.....	<i>Malaclemys terrapin macrospilota</i>	MS
Eastern coral snake	<i>Micrurus fulvius fulvius</i>	MF
Florida green water snake	<i>Nerodia cyclopion floridana</i>	DM, SRST
Banded water snake	<i>Nerodia fasciata fasciata</i>	DM, SRST, ALT
Florida water snake	<i>Nerodia fasciata pictiventris</i>	DM, SRST
Brown water snake	<i>Nerodia taxispilota</i>	HH, SRST
Rough green snake.....	<i>Opheodrys aetivus</i>	DV
Eastern glass lizard	<i>Ophisaurus ventralis</i>	MF
Peninsula cooter	<i>Pseudemys floridana peninsularis</i>	DM
Florida redbelly turtle	<i>Pseudemys nelsoni</i>	DM
Dusky pigmy rattlesnake.....	<i>Sistrurus miliarius barbouri</i>	MFW
Central Florida crowned snake	<i>Tantilla relicta neilli</i>	SFW
Florida box turtle.....	<i>Terrepenne carolina barui</i>	MAH
Peninsula ribbon snake	<i>Thamnophis sauritus sackenii</i>	MF, MEH
Eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>	MF, DM

BIRDS

Common loon.....	<i>Gavia immer</i>	MUS
Red-throated loon	<i>Gavia stllata</i>	MUS
Pied-billed grebe	<i>Podilymbus podiceps</i>	MUS
Horned grebe.....	<i>Podiceps auritus</i>	ESGB, MSGB
Eared grebe	<i>Podilymbus podiceps</i>	MS
American white pelican	<i>Pelecanus erythrorhynchos</i>	OF
Eastern brown pelican.....	<i>Pelecanus occidentalis carolinensis</i>	OF
Northern gannet.....	<i>Sula bassanus</i>	MUS
Double-crested cormorant	<i>Phalacrocorax auritus</i>	OF
Anhinga	<i>Anhinga anhinga</i>	MLK
Magnificent frigatebird	<i>Fregata magnificens</i>	OF

Werner-Boyce Salt Springs State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Great blue heron.....	<i>Ardea herodias</i>	MAH, HH, MS
Green heron	<i>Butorides virescens</i>	MS
Cattle egret.....	<i>Bubulcus ibis</i>	MTC
Little blue heron	<i>Egretta caerulea</i>	MS
Reddish egret.....	<i>Egretta rufescens</i>	MS
Great egret.....	<i>Ardea alba</i>	MAH, HH, MS
Snowy egret	<i>Egretta thula</i>	MS
Tricolored heron.....	<i>Egretta tricolor</i>	MS
Black-crowned night heron	<i>Nycticorax nycticorax</i>	MS
Yellow-crowned night heron	<i>Nycticorax violaceus</i>	MS
Least bittern	<i>Ixobrychus exillis</i>	MS
Wood stork.....	<i>Mycteria americana</i>	MTC
Glossy ibis	<i>Plegadis falcinellus</i>	OF
White ibis.....	<i>Eudocimus albus</i>	MS
Roseate spoonbill	<i>Platalea ajaja</i>	MS
Mallard	<i>Anas platyrhynchos</i>	MS
Mottled duck.....	<i>Anas fulvigula</i>	MLK, MS
Northern shoveler	<i>Anas clypeata</i>	MLK
Green-winged teal.....	<i>Anas crecca</i>	MS
Blue-winged teal	<i>Anas discors</i>	MLK, MS
Northern pintail	<i>Anas acuta</i>	EUS
Northern shoveler	<i>Anas clypeata</i>	MLK
Redhead.....	<i>Aythya americana</i>	MLK
Wood duck.....	<i>Aix sponsa</i>	MS
Lesser scaup	<i>Athya affinis</i>	ESGB, MSGB
Hooded merganser	<i>Lophodytes cucullatus</i>	MUS
Common merganser	<i>Mergus merganser</i>	ESGB, MSGB
Red-breasted merganser	<i>Mergus serrator</i>	ESGB, MSGB
Turkey vulture.....	<i>Cathartes aura</i>	OF
Black vulture.....	<i>Coragyps atratus</i>	OF
Swallow-tailed kite	<i>Elanoides forficatus</i>	OF
Sharp-shinned hawk.....	<i>Accipiter striatus</i>	OF
Cooper's hawk.....	<i>Accipiter cooperii</i>	OF
Red-tailed hawk	<i>Buteo jamaicensis</i>	OF
Red-shouldered hawk	<i>Buteo lineatus</i>	OF
Short-tailed hawk.....	<i>Buteo brachyurus</i>	OF
Southern bald eagle	<i>Haliaeetus leucocephalus</i>	OF
Northern harrier.....	<i>Circus cyaneus</i>	MS
Osprey.....	<i>Pandion haliaetus</i>	OF
Peregrine falcon.....	<i>Falco peregrinus</i>	OF

* Non-native Species

Werner-Boyce Salt Springs State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Merlin.....	<i>Falco columbarius</i>	MF, MS
Northern bobwhite	<i>Colinus virginianus</i>	MF
Wild turkey	<i>Meleagris gallopavo</i>	MF
Sandhill crane	<i>Grus canadensis</i>	OF
King rail	<i>Rallus elegans</i>	MS
Virginia rail	<i>Rallus limicola</i>	MS
Sora.....	<i>Porzana carolina</i>	MS
Clapper rail	<i>Rallus longirostris</i>	MS
Black rail	<i>Laterallus jamaicensis</i>	MS
American coot.....	<i>Fulica americana</i>	MS
American oystercatcher.....	<i>Haematopus palliatus</i>	OF
Semipalmated plover.....	<i>Charadrius semipalmatus</i>	MUS
Wilson’s plover.....	<i>Charadrius wilsonia</i>	MS, MUS
Killdeer	<i>Charadrius vociferous</i>	MS
Black-bellied plover	<i>Pluvialia squatarola</i>	MUS
Ruddy turnstone	<i>Arenaria interpres</i>	MS
Common snipe	<i>Gallinago gallinago</i>	MS
Whimbrel.....	<i>Numenius americanus</i>	MUS
Spotted sandpiper	<i>Actitis macularia</i>	MS
Greater yellowlegs	<i>Tringa melanoleuca</i>	MUS
Lesser yellowlegs	<i>Tringa flavipes</i>	MUS
Willet.....	<i>Catoptrophorus semipalmatus</i>	MS
Red knot	<i>Calidris canutus</i>	MS
Least sandpiper	<i>Calidris minutilla</i>	MUS
Dunlin	<i>Calidris alpine</i>	MUS
Western sandpiper	<i>Calidris mauri</i>	MUS
Stilt sandpiper.....	<i>Calidris himantopus</i>	MS
Sanderling	<i>Calidris alba</i>	MS
Stilt sandpiper.....	<i>Calidris himantopus</i>	MS
Short-billed dowitcher.....	<i>Limnodromus griseus</i>	MUS
American woodcock	<i>Scolopax minor</i>	BS
Herring gull	<i>Larus argentatus</i>	OF
Ring-billed gull.....	<i>Larus delawarensis</i>	OF
Laughing gull	<i>Larus atricilla</i>	OF
Gull-billed tern	<i>Sterna nilotica</i>	OF
Forster’s tern.....	<i>Sterna forsteri</i>	OF
Least tern	<i>Sterna antillarum</i>	OF
Royal tern	<i>Sterna maxima</i>	OF
Caspian tern.....	<i>Sterna caspia</i>	OF
Rock dove*	<i>Columba livia</i>	MTC

* Non-native Species

Werner-Boyce Salt Springs State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
White-winged dove	<i>Zenaida asiatica</i>	MF
Mourning dove.....	<i>Zenaida macroura</i>	MF
Eurasian collared dove*	<i>Streptopelia decaocto</i>	MF
Common ground-dove.....	<i>Comubia passerine</i>	MF
Sun Conure*	<i>Aratinga solstitialis</i>	ESGB
Budgerigar*	<i>Melopsittacus undulates</i>	OF
Monk parakeet*	<i>Myiopsitta monachus</i>	OF
Black-hooded parakeet*	<i>Nandayus nenday</i>	MLK
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	HH
Great horned owl	<i>Bubo virginianus</i>	MF
Barred owl.....	<i>Strix varia</i>	MF, HH
Eastern screech owl.....	<i>Otus asio</i>	HH
Chuck-wills-widow	<i>Caprimulgus carolinensis</i>	MAH
Whip-poor-will.....	<i>Caprimulgus vociferous</i>	MF
Common nighthawk.....	<i>Chordeiles minor</i>	OF
Chimney swift	<i>Chaetura pelagica</i>	OF
Ruby-throated hummingbird.....	<i>Archilochus colubris</i>	MTC
Belted kingfisher	<i>Ceryle alcyon</i>	MS
Northern flicker	<i>Colaptes auratus</i>	MFW
Red-bellied woodpecker	<i>Melanerpes carolinus</i>	MF
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	MF
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	MF
Southern hairy woodpecker	<i>Picoides villosus audubonii</i>	MF
Downy woodpecker	<i>Picoides pubescens</i>	MF
Pileated woodpecker	<i>Dryocopus pileatus</i>	MF
Eastern kingbird	<i>Tyrannus tyrannus</i>	MF
Gray kingbird	<i>Tyrannus dominicensis</i>	MS
Yellow-bellied flycatcher	<i>Empidonax flaviventris</i>	HH
Great-crested flycatcher	<i>Myiarchus crinitus</i>	HH
Eastern phoebe	<i>Sayornis phoebe</i>	MF, SCF
Eastern wood-pewee	<i>Contopus virens</i>	MFW
Tree swallow	<i>Tachycineta bicolor</i>	OF
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>	OF
Barn swallow	<i>Hirundo rustica</i>	OF
Purple martin.....	<i>Progne subis</i>	OF
Blue jay	<i>Cyanocitta cristata</i>	MF
American crow	<i>Corus brachyrhynchos</i>	MF, MLK
Fish crow	<i>Corus ossifragus</i>	OF
Tufted titmouse	<i>Baeolophus bicolor</i>	MTC
Carolina chickadee.....	<i>Poecile carolinensis</i>	MF

* Non-native Species

Werner-Boyce Salt Springs State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
House wren.....	<i>Troglodytes aedon</i>	MF, HH
Carolina wren.....	<i>Thryothorus ludovicianus</i>	MF, BG
Marsh wren.....	<i>Cistothorus palustris</i>	MS
Marian's marsh wren.....	<i>Cistothorus palustris marianae</i>	MS
Sedge wren.....	<i>Cistothorus platensis</i>	MS
Northern mockingbird	<i>Mimus polyglottos</i>	MTC
Gray catbird	<i>Dumetella carolinensis</i>	MAH, MF
Brown thrasher	<i>Toxostoma rufum</i>	MF, HH
American robin.....	<i>Turdus migratorius</i>	MAH, MF, HH
Wood thrush.....	<i>Hylocichla mustelina</i>	DM
Hermit thrush.....	<i>Catharus guttatus</i>	HH
Swainson's thrush.....	<i>Catharus ustulatus</i>	HH
Veery	<i>Catharus fuscescens</i>	HH
Eastern bluebird	<i>Sialia sialis</i>	MF
Blue-gray gnatcatcher.....	<i>Polioptila caerulea</i>	MF
Golden-crowned kinglet.....	<i>Regulus satrapa</i>	HH
Ruby-crowned kinglet.....	<i>Regulus calendula</i>	HH
American pipit.....	<i>Anthus rubescens</i>	OF
Cedar waxwing	<i>Bombycilla cedrorum</i>	OF
White-eyed vireo.....	<i>Vireo griseus</i>	MF
Yellow-throated vireo.....	<i>Vireo flavifrons</i>	MF
Blue-headed vireo	<i>Vireo solitarius</i>	MF
Red-eyed vireo.....	<i>Vireo olivaceus</i>	MF
Black-and-white warbler.....	<i>Mniotilta varia</i>	HH
Prothonotary warbler	<i>Protonotaria citrea</i>	HH
Worm-eating warbler	<i>Helmitheros vermivora</i>	MAH
Golden-winged warbler	<i>Vermivora chrysoptera</i>	HH
Blue-winged warbler	<i>Vermivora pinus</i>	HH
Tennessee warbler.....	<i>Vermivora peregrina</i>	HH
Orange-crowned warbler.....	<i>Vermivora celata</i>	HH
Northern parula	<i>Parula americana</i>	HH
Yellow warbler	<i>Dendroica petechia</i>	MAH
Magnolia warbler.....	<i>Dendroica magnolia</i>	HH
Black-throated blue warbler.....	<i>Dendroica caerulescens</i>	HH
Yellow-rumped warbler.....	<i>Dendroica coronata</i>	MTC
Yellow-throated warbler.....	<i>Dendroica dominica</i>	MF, HH
Blackburnian warbler	<i>Dendroica fusca</i>	HH
Chestnut-sided warbler.....	<i>Dendroica pensylvanica</i>	HH
Bay-breasted warbler.....	<i>Dendroica castanea</i>	MF
Pine warbler	<i>Dendroica pinus</i>	MF

* Non-native Species

Werner-Boyce Salt Springs State Park Animals

Common Name	Scientific Name	Primary Habitat Codes (for imperiled species)
Prairie warbler	<i>Dendroica discolor</i>	MF
Palm warbler.....	<i>Dendroica palmarum</i>	MF
Ovenbird	<i>Seiurus aurocapillus</i>	HH
Northern waterthrush	<i>Seiurus noveboracensis</i>	MF
Louisiana waterthrush	<i>Seiurus motacilla</i>	HH
Kentucky warbler.....	<i>Oporomis formosus</i>	HH
Common yellowthroat	<i>Geothlypis trichas</i>	MTC
Hooded warbler	<i>Wilsonia citrine</i>	HH
Wilson’s warbler	<i>Wilsonia pusilla</i>	MF
American redstart	<i>Setophaga ruticilla ruticilla</i>	MF
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	MLK
Red-winged blackbird	<i>Agelaius phoeniceus</i>	MF, MS
Orchard oriole	<i>Icterus spurious</i>	MF
Baltimore oriole	<i>Icterus galbula</i>	HH
Boat-tailed grackle	<i>Quiscalus major</i>	MS
Common grackle	<i>Quiscalus quiscula</i>	MTC
Brown-headed cowbird.....	<i>Molothrus ater</i>	OF
Scarlet tanager	<i>Piranga olivacea</i>	HH
Summer tanager	<i>Piranga rubra</i>	MF
Northern cardinal.....	<i>Cardinalis cardinalis</i>	MF
Rose-breasted grosbeak.....	<i>Pheucticus ludovicianus</i>	MF, HH
Blue grosbeak.....	<i>Guiraca caerulea</i>	MF
Indigo bunting.....	<i>Passerina cyanea</i>	MF
Painted bunting	<i>Passerina ciris</i>	DV
Eastern towhee	<i>Pipilo erythrophthalmus</i>	MF
Bachman’s sparrow.....	<i>Aimophila aestivalis</i>	MF
Savannah sparrow	<i>Passerculus sandwichensis</i>	MS
Grasshopper sparrow	<i>Ammodramus savannarum</i>	MS
Nelson’s sharp-tailed sparrow	<i>Ammodramus nelsoni</i>	MS
Saltmarsh sharp-tailed sparrow	<i>Ammodramus caudacutus</i>	MS
Scott’s seaside sparrow	<i>Ammodramus maritimus peninsulae</i>	MS
Swamp sparrow	<i>Melospiza georgiana</i>	HH, MS
Song sparrow	<i>Melospiza melodia</i>	MF, MS
White-throated sparrow	<i>Zonotrichia albicollis</i>	MF
House finch*	<i>Carpodacus mexicanus</i>	MF
American goldfinch	<i>Caduelis tristis</i>	MF, MLK
Pine siskin	<i>Carduelis pinus</i>	OF
House sparrow*.....	<i>Passer domesticus</i>	DV

* Non-native Species

Werner-Boyce Salt Springs State Park Animals

Common Name	<i>Scientific Name</i>	Primary Habitat Codes (for imperiled species)
MAMMALS		
Coyote*	<i>Canis latrans</i>	MFW
Virginia opossum	<i>Didelphis virginiana</i>	MTC
Nine-banded armadillo *	<i>Dasypus novemcinctus</i>	MFW
Feral cat*	<i>Felis catus</i>	DV, HH
Bobcat	<i>Felis rufus</i>	MF, HH
River otter	<i>Lutra canadensis</i>	MS
Striped skunk	<i>Mephitis mephitis</i>	DV
White tailed deer	<i>Odocoileus virginianus</i>	MTC
Cotton mouse	<i>Peromyscus gossypinus gossypinus</i>	MF
Raccoon	<i>Procyon lotor</i>	MTC
Hispid cotton rat	<i>Sigmodon hispidus</i>	ALT
Marsh rabbit	<i>Sylvilagus palustris</i>	DM
Eastern cottontail	<i>Sylvilagus floridanus</i>	MF
West Indian manatee	<i>Trichechus manatus</i>	ESGB, MSGB
Atlantic bottle-nosed dolphin	<i>Tursiops truncatus</i>	ESGB, MSGB
Florida black bear	<i>Ursus americanus floridanus</i>	MTC
Gray fox	<i>Urocyon cinereoargenteus</i>	MTC
Red fox*	<i>Vulpes vulpes</i>	SCF

* Non-native Species

Natural Community Habitat Codes

TERRESTRIAL

Beach Dune	BD
Coastal Berm.....	CB
Coastal Grassland	CG
Coastal Strand.....	CS
Dry Prairie.....	DP
Keys Cactus Barren.....	KCB
Limestone Outcrop	LO
Maritime Hammock	MAH
Mesic Flatwoods.....	MF
Mesic Hammock.....	MEH
Pine Rockland.....	PR
Rockland Hammock	RH
Sandhill.....	SH
Scrub	SC
Scrubby Flatwoods	SCF
Shell Mound.....	SHM
Sinkhole	SK
Slope Forest	SPF
Upland Glade	UG
Upland Hardwood Forest.....	UHF
Upland Mixed Woodland.....	UMW
Upland Pine	UP
Wet Flatwoods.....	WF
Xeric Hammock.....	XH

PALUSTRINE

Alluvial Forest	AF
Basin Marsh.....	BM
Basin Swamp.....	BS
Baygall	BG
Bottomland Forest.....	BF
Coastal Interdunal Swale	CIS
Depression Marsh	DM
Dome Swamp	DS
Floodplain Marsh.....	FM
Floodplain Swamp.....	FS
Glades Marsh.....	GM
Hydric Hammock	HH
Keys Tidal Rock Barren.....	KTRB
Mangrove Swamp.....	MS

Natural Community Habitat Codes

Marl Prairie	MP
Salt Marsh.....	SAM
Seepage Slope	SSL
Shrub Bog.....	SHB
Slough	SLO
Slough Marsh.....	SLM
Strand Swamp	STS
Wet Prairie	WP

LACUSTRINE

Clastic Upland Lake.....	CULK
Coastal Dune Lake	CDLK
Coastal Rockland Lake	CRLK
Flatwoods/Prairie.....	FPLK
Marsh Lake.....	MLK
River Floodplain Lake	RFLK
Sandhill Upland Lake.....	SULK
Sinkhole Lake.....	SKLK
Swamp Lake.....	SWLK

RIVERINE

Alluvial Stream.....	AST
Blackwater Stream	BST
Seepage Stream.....	SST
Spring-run Stream.....	SRST

SUBTERRANEAN

Aquatic Cave	ACV
Terrestrial Cave	TCV

ESTUARINE

Algal Bed	EAB
Composite Substrate.....	ECPS
Consolidated Substrate	ECNS
Coral Reef	ECR
Mollusk Reef	EMR
Octocoral Bed.....	EOB
Seagrass Bed	ESGB
Sponge Bed.....	ESPB

Natural Community Habitat Codes

Unconsolidated Substrate.....	EUS
Worm Reef	EWR

MARINE

Algal Bed	MAB
Composite Substrate.....	MCPS
Consolidated Substrate	MCNS
Coral Reef.....	MCR
Mollusk Reef.....	MMR
Octocoral Bed.....	MOB
Seagrass Bed	MSGB
Sponge Bed.....	MSPB
Unconsolidated Substrate.....	MUS
Worm Reef	MWR

ALTERED LANDCOVER TYPES

Abandoned field.....	ABF
Abandoned pasture	ABP
Agriculture.....	AG
Canal/ditch.....	CD
Clearcut pine plantation.....	CPP
Clearing	CL
Developed	DV
Impoundment/artificial pond	IAP
Invasive exotic monoculture	IEM
Pasture - improved	PI
Pasture - semi-improved.....	PSI
Pine plantation.....	PP
Road	RD
Spoil area.....	SA
Successional hardwood forest.....	SHF
Utility corridor.....	UC

MISCELLANEOUS

Many Types of Communities.....	MTC
Overflying	OF

Addendum 6 – Imperiled Species Ranking Definitions

Imperiled Species Ranking Definitions

The Nature Conservancy and the Natural Heritage Program Network (of which FNAI is a part) define an element as any exemplary or rare component of the natural environment, such as a species, natural community, bird rookery, spring, sinkhole, cave or other ecological feature. An element occurrence (EO) is a single extant habitat that sustains or otherwise contributes to the survival of a population or a distinct, self-sustaining example of a particular element.

Using a ranking system developed by The Nature Conservancy and the Natural Heritage Program Network, the Florida Natural Areas Inventory assigns two ranks to each element. The global rank is based on an element's worldwide status; the state rank is based on the status of the element in Florida. Element ranks are based on many factors, the most important ones being estimated number of Element occurrences, estimated abundance (number of individuals for species; area for natural communities), range, estimated adequately protected EOs, relative threat of destruction, and ecological fragility.

Federal and State status information is from the U.S. Fish and Wildlife Service; and the Florida Game and Freshwater Fish Commission (animals), and the Florida Department of Agriculture and Consumer Services (plants), respectively.

FNAI GLOBAL RANK DEFINITIONS

- G1Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or fabricated factor.
- G2Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- G3Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
- G4apparently secure globally (may be rare in parts of range)
- G5demonstrably secure globally
- GHof historical occurrence throughout its range may be rediscovered (e.g., ivory-billed woodpecker)
- GX.....believed to be extinct throughout range
- GXC.....extirpated from the wild but still known from captivity or cultivation
- G#?Tentative rank (e.g.,G2?)
- G#G#.....range of rank; insufficient data to assign specific global rank (e.g., G2G3)
- G#T#rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1)

Imperiled Species Ranking Definitions

- G#Q.....rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q)
- G#T#Q.....same as above, but validity as subspecies or variety is questioned.
- GUdue to lack of information, no rank or range can be assigned (e.g., GUT2).
- G?.....Not yet ranked (temporary)
- S1Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.
- S2Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.
- S3Either very rare or local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction of other factors.
- S4apparently secure in Florida (may be rare in parts of range)
- S5demonstrably secure in Florida
- SH.....of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker)
- SX.....believed to be extinct throughout range
- SAaccidental in Florida, i.e., not part of the established biota
- SE.....an exotic species established in Florida may be native elsewhere in North America
- SN.....regularly occurring but widely and unreliably distributed; sites for conservation hard to determine
- SUdue to lack of information, no rank or range can be assigned (e.g., SUT2).
- S?.....Not yet ranked (temporary)
- NNot currently listed, nor currently being considered for listing, by state or federal agencies.

LEGAL STATUS

FEDERAL

(Listed by the U. S. Fish and Wildlife Service - USFWS)

- LE.....Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species that is in danger of extinction throughout all or a significant portion of its range.
- PE.....Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.

Imperiled Species Ranking Definitions

- LT.....Listed as Threatened Species. Defined as any species that is likely to become an endangered species within the near future throughout all or a significant portion of its range.
- PT.....Proposed for listing as Threatened Species.
- C.....Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants. Defined as those species for which the USFWS currently has on file sufficient information on biological vulnerability and threats to support proposing to list the species as endangered or threatened.
- E(S/A).....Endangered due to similarity of appearance.
- T(S/A).....Threatened due to similarity of appearance.

STATE

ANIMALS ..(Listed by the Florida Fish and Wildlife Conservation Commission - FFWCC)

- LE.....Listed as Endangered Species by the FFWCC. Defined as a species, subspecies, or isolated population which is so rare or depleted in number or so restricted in range of habitat due to any man-made or natural factors that it is in immediate danger of extinction or extirpation from the state, or which may attain such a status within the immediate future.
- LT.....Listed as Threatened Species by the FFWCC. Defined as a species, subspecies, or isolated population, which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat, is decreasing in area at a rapid rate and therefore is destined or very likely to become an endangered species within the near future.
- LS.....Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance or substantial human exploitation that, in the near future, may result in its becoming a threatened species?

PLANTS(Listed by the Florida Department of Agriculture and Consumer Services - FDACS)

- LE.....Listed as Endangered Plants in the Preservation of Native Flora of Florida Act. Defined as species of plants native to the state that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue, and includes all

Imperiled Species Ranking Definitions

species determined to be endangered or threatened pursuant to the Federal Endangered Species Act of 1973, as amended.

LT.....Listed as Threatened Plants in the Preservation of Native Flora of Florida Act. Defined as species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in such number as to cause them to be endangered.

Addendum 7 – Cultural Information

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised February 2007)

These procedures apply to state agencies, local governments and non-profits that manage state-owned properties.

A. General Discussion

Historic resources are both archaeological sites and historic structures. Per Chapter 267, Florida Statutes, "Historic property" or "historic resource" means any prehistoric district, site, building, object, or other real or personal property of historical, architectural or archaeological value, and folklife resources. These properties or resources may include, but are not limited to, monuments, memorials, Indian habitations, ceremonial sites, abandoned settlements, sunken or abandoned ships, engineering works, treasure trove, artifacts, or other objects with intrinsic historical or archaeological value, or any part thereof, relating to the history, government, and culture of the state."

B. Agency Responsibilities

Per State Policy relative to historic properties, state agencies of the executive branch must allow the Division of Historical Resources (Division) the opportunity to comment on any undertakings, whether these undertakings directly involve the state agency, i.e., land management responsibilities, or the state agency has indirect jurisdiction, i.e. permitting authority, grants, etc. No state funds should be expended on the undertaking until the Division has the opportunity to review and comment on the project, permit, grant, etc.

State agencies shall preserve the historic resources that are owned or controlled by the agency.

Regarding proposed demolition or substantial alterations of historic properties, consultation with the Division must occur, and alternatives to demolition must be considered.

State agencies must consult with Division to establish a program to location, inventory and evaluate all historic properties under ownership or controlled by the agency.

C. Statutory Authority

Statutory Authority and more in depth information can be found in the following:

Chapter 253, F.S. – State Lands

Chapter 267, F.S. – Historical Resources

Management Procedures for Archaeological and Historical Sites and Properties on State-Owned or Controlled Properties (revised February 2007)

Chapter 872, F.S. – Offenses Concerning Dead Bodies and Graves

Other helpful citations and references:

Chapter 1A-32, F.A.C. – Archaeological Research

Other helpful citations and references:

Chapter 1A-44, F.A.C. – Procedures for Reporting and Determining Jurisdiction Over Unmarked Human Burials

Chapter 1A-46, F.A.C. – Archaeological and Historical Report Standards and Guidelines

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings

D. Management Implementation

Even though the Division sits on the Acquisition and Restoration Council and approves land management plans, these plans are conceptual. Specific information regarding individual projects must be submitted to the Division for review and recommendations.

Managers of state lands must coordinate any land clearing or ground disturbing activities with the Division to allow for review and comment on the proposed project. Recommendations may include, but are not limited to: approval of the project as submitted, pre-testing of the project site by a certified archaeological monitor, cultural resource assessment survey by a qualified professional archaeologist, modifications to the proposed project to avoid or mitigate potential adverse effects.

Projects such as additions, exterior alteration or related new construction regarding historic structures must also be submitted to the Division of Historical Resources for review and comment by the Division's architects. Projects involving structures fifty years of age or older, must be submitted to this agency for a significance determination. In rare cases, structures under fifty years of age may be deemed historically significant. These must be evaluated on a case-by-case basis.

Adverse impacts to significant sites, either archaeological sites or historic buildings, must be avoided. Furthermore, managers of state property should prepare for locating and evaluating historic resources, both archaeological sites and historic structures.

**Management Procedures for Archaeological and Historical Sites and Properties on
State-Owned or Controlled Properties (revised February 2007)**

E. Minimum Review Documentation Requirements

In order to have a proposed project reviewed by the Division, the following information, at a minimum, must be submitted for comments and recommendations.

Project Description - A detailed description of the proposed project including all related activities. For land clearing or ground disturbing activities, the depth and extent of the disturbance, use of heavy equipment, location of lay down yard, etc. For historic structures, specific details regarding rehabilitation, demolition, etc.

Project Location - The exact location of the project indicated on a USGS Quadrangle map, is preferable. A management base map may be acceptable. Aerial photos indicating the exact project area as supplemental information are helpful.

Photographs - Photographs of the project area are always useful. Photographs of structures are required.

Description of Project Area - Note the acreage of the project; describe the present condition of project area, and any past land uses or disturbances.

Description of Structures - Describe the condition and setting of each building within project area if approximately fifty years of age or older.

Recorded Archaeological Sites or Historic Structures - Provide Florida Master Site File numbers for all recorded historic resources within or adjacent to the project area. This information should be in the current management plan; however, it can be obtained by contacting the Florida Master Site File at (850) 245-6440 or Suncom 205-6440.

Questions relating to the treatment of archaeological and historic resources on state lands should be directed to:

Susan M. Harp
Historic Preservation Planner
Division of Historical Resources
Bureau of Historic Preservation
Compliance and Review Section
R. A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

Phone: (850) 245-6333
Fax: (850) 245-6438

Eligibility Criteria for National Register of Historic Places

The criteria to be used for evaluating eligibility for listing in the National Register of Historic Places are as follows:

- 1) Districts, sites, buildings, structures, and objects may be considered to have significance in American history, architecture, archaeology, engineering, and/or culture if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
 - a) are associated with events that have made a significant contribution to the broad patterns of our history; and/or
 - b) are associated with the lives of persons significant in our past; and/or
 - c) embody the distinctive characteristics of type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; and/or
 - d) have yielded, or may be likely to yield, information important in prehistory or history.

- 2) Ordinarily cemeteries, birthplaces, or graves of historical figures; properties owned by religious institutions or used for religious purposes; structures that have been moved from their original locations; reconstructed historic buildings; properties primarily commemorative in nature; and properties that have achieved significance within the past 50 years shall not be considered eligible for the *National Register*. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
 - a) a religious property deriving its primary significance from architectural or artistic distinction or historical importance; or
 - b) a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
 - c) a birthplace or grave of an historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or
 - d) a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, distinctive design features, or association with historic events; or

Eligibility Criteria for National Register of Historic Places

- e) a reconstructed building, when it is accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and no other building or structure with the same association has survived; or a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
- f) a property achieving significance within the past 50 years, if it is of exceptional importance.

Preservation Treatments as Defined by Secretary of Interior's Standards and Guidelines

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations and additions while preserving those portions or features that convey its historical, cultural or architectural values.

Stabilization is defined as the act or process of applying measures designed to reestablish a weather resistant enclosure and the structural stability of an unsafe or deteriorated property while maintaining the essential form as it exists at present.

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Addendum 8 – Current Land Management Review

February 18, 2011

TO: Marianne Gengenbach, Program Administrator
Division of State Lands

FROM: Parks Small, Chief, Bureau of Natural and Cultural Resources *PS*
Division of Recreation and Parks

Albert Gregory, Chief, Office of Park Planning *AG*
Division of Recreation and Parks

SUBJECT: Response to Draft Land Management Review (LMR)
Werner Boyce Salt Springs State Park

The Land Management Review draft report provided to DRP determined that management of Werner-Boyce Salt Springs State Park by the Division of Recreation and Parks met the two tests prescribed by law. Namely, the review team concluded that the land is being managed for the purposes for which it was acquired and in accordance with the land management plan.

Below are Additional Recommendations and Checklist Findings (items the LMR determined should be further addressed in the management plan update) of the draft LMR report, with our Manager's Response to each. The responses were prepared via a coordinated effort of the park, district office, and our offices.

The team recommends that DRP complete the visitor amenities necessary to provide general public use at this park. (VOTE: 5+, 0-)

Managing Agency Response: Agree; permitting and construction are progressing.

The team recommends that the Park renew the emphasis on prescribed fire and increase the frequency of burns. (VOTE: 5+, 0-)

Managing Agency Response: Agree; an annual target for prescribed burning will be specified in the revised Unit Management Plan.

The team recommends that DRP seek additional funding to address treatment and control of exotic species, including cogongrass and Brazilian pepper, which remain untreated and out of maintenance. (VOTE: 5+, 0-)

Managing Agency Response: Agree; additional funding is essential and should be applied for as opportunities arise.

The team recommends that DRP complete the waterway management plan to address uses such as airboats, jet skis, and motorboats. (VOTE: 5+, 0-)

Managing Agency Response: Agree.

Discussion in the management plan regarding Natural Communities, specifically Spring-Run Stream.

Managing Agency Response: This will be addressed in the revised Unit Management Plan.

Discussion in the management plan regarding Listed Species, specifically Black Rail, Wilson's Plover and Plant Inventory.

Managing Agency Response: [These did not score below 0.5]

Discussion in the management plan regarding Natural Resource Survey, specifically Sport Fish or Habitat Monitoring.

Managing Agency Response: [This did not score below 0.5]

Discussion in the management plan regarding Adjacent Resource Management, specifically Area Being Burned.

Managing Agency Response: This will be addressed in the revised Unit Management Plan, but not as adjacent resource management (what "adjacent resource management" refers to is unclear, and not on the PLAN REVIEW list below).

Discussion in the management plan regarding Restoration of Ruderal Areas, specifically Mosquito Ditch Removal, SR 52 Road Removal, and Mitigation Area.

Managing Agency Response: [Mosquito Ditch Removal and SR 52 Road Removal did not score below 0.5] The Mitigation Area will be discussed in the revised Unit Management Plan.

Discussion in the management plan regarding Managed Area Uses, specifically Airboats, Motor Boats, Paved Trails, and Observation Platform.

Managing Agency Response: [Motor boats and Observation Platform did not score below 0.5] The recreational use of airboats in the park, as well as plans for Paved Trails, will be addressed in the revised Unit Management Plan.

Increased resource management activities related to prescribed fire, specifically the area being burned and frequency at which burns are completed, with documentation in the management plan.

Managing Agency Response: Agree.

The need for surface water monitoring, specifically quality and quantity, with documentation in the management plan.

Managing Agency Response: Park and District staff will not be able to maintain a water quality monitoring program on their own. Instead, staff will attempt to enlist assistance of the Water Management District (or local Water Authority or local health department) to assist the park in regular water quality/quantity monitoring.

Discussion regarding Public Access & Education, specifically Roads, Parking, and Boat Access, with documentation in the management plan.

Managing Agency Response: Permitting and construction for public access are progressing. The revised Unit Management Plan will address the status of land use.

Discussion of the deficiencies in Management Resources, specifically staff and funding, with documentation in the management plan.

Managing Agency Response: The revised Unit Management Plan will address land management funding needs, but Division funding is determined annually by the Florida Legislature. Similarly, if it is determined that additional staff are needed, it will be included in the revised Unit Management Plan, but new staff must be appropriated by the Legislature or reassigned from other units.

Thank you for your attention.

GK

CC: Valinda Subic, Chief, Bureau of Parks District 4
Ezell Givens, Assistant Chief, Bureau of Parks District 4
Larry Steed, Park Manager, Werner-Boyce Salt Springs State Park
Terry Hingtgen , Environmental Specialist, Bureau of Parks District 4